A Dissertation on

TO EVALUATE THE DIAGNOSTIC EFFICACY OF CORE NEEDLE BIOPSY IN DISTINGUISHING PHYLLODES TUMOUR AND FIBROADENOMA IN FIBROEPITHELIAL BREAST LESIONS

Dissertation Submitted to

THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY

CHENNAI - 600 032

with partial fulfilment of the regulations

for the award of the degree of

M.S. GENERAL SURGERY

(BRANCH I))

COIMBATORE MEDICAL COLLEGE,

COIMBATORE

MAY 2019

DECLARATION

The dissertation titled **"TO EVALUATE THE DIAGNOSTIC EFFICACY OF CORE NEEDLE BIOPSY IN DISTINGUISHING PHYLLODES TUMOUR AND FIBROADENOMA IN FIBROEPITHELIAL BREAST LESIONS"** is being submitted by me to "The Tamil Nadu Dr. M.G.R. Medical University in partial fulfilment of the regulation for the completion of the M.S. General Surgery Degree Examination to be held in 2019.

This work has been carried out in the Department of General Surgery, Coimbatore Medical College and Hospital, Coimbatore, under the guidance of **Dr.T.SRINIVASAN.MS,** Professor of General Surgery, Coimbatore Medical College and Hospital, Coimbatore.

Date : **Dr.Raja.R**

Place : Coimbatore

CERTIFICATE

I, hereby declare that the dissertation entitled **"TO EVALUATE THE DIAGNOSTIC EFFICACY OF CORE NEEDLE BIOPSY IN DISTINGUISHING PHYLLODES TUMOUR AND FIBROADENOMA IN FIBROEPITHELIAL BREAST LESIONS"** is the bonafide research work done by **Dr.R. RAJA** and submitted in partial fulfilment of the requirement of the degree of Master of Surgery in General Surgery, Coimbatore Medical College and Hospital, Coimbatore.

Date : **Unit Chief**

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ETHICS COMMITTEE

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Name of the Candidate:		**Dr. Raja .R**
Course	:	**MS (General Surgery) Post Graduate**
Period of Study	:	**1 year**
College	:	**Coimbatore Medical College & Hospital.**
Dissertation Topic	:	**To evaluate the diagnostic efficacy of core needle biopsy in distinguishing phyllodes tumour and fibro adenoma in fibroepithelial breast lesions.**

The Ethics Committee, Coimbatore Medical College has decided to inform that your Dissertation Proposal is accepted and you are permitted to proceed with the above Study.

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CERTIFICATE-II

This is to certify that dissertation entitled **"TO EVALUATE THE DIAGNOSTIC EFFICACY OF CORE NEEDLE BIOPSY IN DISTINGUISHING PHYLLODES TUMOUR AND FIBROADENOMA IN FIBROEPITHELIAL BREAST LESIONS"** of the candidate **Dr.R. RAJA** with registration Number **221611311** for the ward of M.S in the Branch of General Surgery, I personally verified the urkund.com website for the purpose of plagiarism Check. I found that the uploaded thesis file contains 86 pages from introduction to conclusion and the result shows 2% (Two) percentage of plagiarism in the dissertation.

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ACKNOWLEDGEMENT

My sincere thanks to **Prof.Dr.Asokan.MS.,MCH, DEAN,** Coimbatore medical and hospital for allowing me to conduct this study in the Department of General Surgery, Coimbatore Medical and Hospital.

I am extremely grateful to **Dr.P.Elango.MS,** Professor and Head of the Department of General Surgery, Coimbatore Medical College and Hospital for his encouragement and permission in granting unrestricted access to utilizing the resources of the department.

I thank my mentor and guide **Dr.T.Srinivasan.Ms,** Professor of General Surgery, Coimbatore Medical College and Hospital for his valuable guidance during the tenure of my course.

I thank my professors **Dr.Nirmala.Ms, Dr.Ganesh Babu.Ms, Dr.Lakshmi Narayani. Ms** for their immense guidance.

I thank my professor **Dr.Lalitha,** Head of the Department of Pathology. **Dr.Muralidharan,** Head of the Department of Radiology for their support and guidance.

I also acknowledge my assistant professor and co-author **Dr.B.Jayalakshmi.Ms** for her valuable support and timely help rendered to complete this study.

I also acknowledge my assistant professor **Dr.A.M.Umashankar DMRD,MS, Dr.T.Gunalasuresh.Ms** for her valuable support and timely help rendered to complete this study.

I thank my colleagues and friends, who helped me throughout my study.

I would like to thank the entire medical and paramedical staff of the Department of General Surgery, Department Of Pathology, Department Of Radiology.

My utmost thanks to all my patients who co-operated to complete my dissertation, without their help it would have been impossible for me to complete this study.

I thank Dr.Nivethitha for her immense help and support.

DATE: **Dr.RAJA.R**

ABBREVIATIONS

FNAC	-	Fine needle aspiration cytology
USG	-	Ultrasonography
CSP	-	Cystosarcomaphyllodes
FCD	-	Fibro cystic disease
CNB	-	Core needle biopsy
BIRADS	-	Breast imaging reporting and data system
PT	-	Phyllodes tumour
F	-	Fibroadenoma

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INTRODUCTION

Fibro epithelial breast lesions are the most common breast abnormality in adolescent females referred to as fetal fibroadenoma, cellular fibroadenoma, juvenile fibroadenoma, giant fibroadenoma, fibroadenoma variant, tubular adenoma, hamartoma , phyllodes tumour.

The aetiology of the fibroepithelial lesions is found to be unclear. These are the benign conditions of the breast but some of them have the potential to turning into malignant.

Among the breast lump benign disease of breast constitutes of 80%.of these 7% are fibroadenoma and phyllodes tumour contributes to less than 1%. Even though the incidence is low, the importance of phyllodes tumour is that it is further divided by WHO into benign borderline and malignant, based on the stromal cellularity of atypical, stromal overgrowth, mitotic figures. So compared with fibroadenoma ,phyllodes tumour has more potential for turning to malignancy.

So the fibroadenoma requires a simple enucleation but for the phyllodes tumour, since it has more malignant potential, a wide excision is needed with a clearance of at least 1 cm.

So when a patient with breast lump reaches the out-patient, we subject the patient with basic information and FNAC. Based on the FNAC report as fibroadenoma, we proceed with enucleation.post

operatively the histopathological examination of the specimen done. If the reports were found to be phyllodes tumour then we have to readmit the patient and post the patient for re-operation, which is the removal of excision biopsy site with clearance of about 1cm.

This increase the morbidity to the patient and period of hospital stay of the patient is also increased. Secondly if the patient has lost follow up, then there is a high chance of reoccurrence of tumour and the patient will again present with breast lump over the excision biopsy site.

To prevent the above mentioned difficulties, we need an investigation, which can pre-operatively distinguish a fibroadenoma and phyllodes tumour.

Many studies have been undergone to differentiate the fibroadenoma and phyllodes tumour based on the clinical features, FNAC features, radiological features of mammography and USG.

There are many scores that have been devised and studied to differentiate the fibroadenoma and phyllodes tumour, of which the Paddington's clinicopathological suspicion score is of greater significance. So to determine the appropriate treatment, phyllodes tumour should be diagnosed pre-operatively.

AIMS AND OBJECTIVES

1. To determine the incidence of fibroepithelial lesion in relation to age.

2. To analyse and interpret the histological features in core needle biopsy to diagnose phyllodes tumour.

3. To prevent re-operation and recurrence of tumour.

4. To analyse and interpret core needle biopsy findings with the findings of clinical examination, mammography, ultrasonography, fine needle aspiration cytology in diagnosing phyllodes tumour.

REVIEW OF LITERATURE

DEVELOPMENT OF BREAST

The breast develops from the mammary ridge or milk line or line of Schultz, which is an ectodermal thickening.

It develops at around 4th week of intrauterine life.

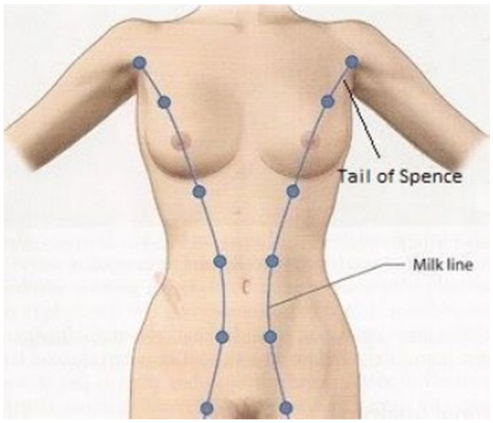
The milk line extends from the axilla to groin, but in human beings most of them disappears except in the pectoral region.

The stroma is mesodermal in origin.

From the persisting parts, mammary pit develops; the floor of the mammary pit gives rise to secondary bud which divides further to form the lobes of the gland.

The entire system is solid which later gets canalized.

The nipple gets everted at the site of mammary pit.



ANATOMY OF BREAST

Breast is one of the modified sweat gland.

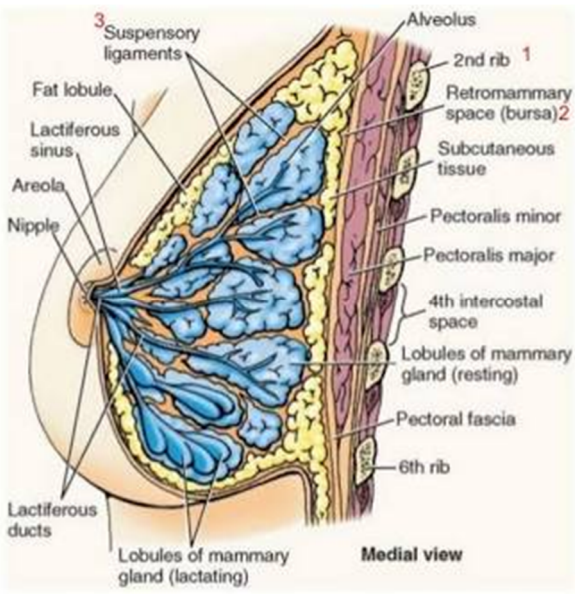
More precisely apocrine gland.

It is present in the pectoral region. Both male and female found to have breast, but it is rudimentary in male, and well developed in female.

In the female reproductive system it forms an accessory organ. In the newborn it provides nutrition in the form of milk. Shape of female breast is due to the fat contained within the fibrous septa.

Breast lies within the skin and pectoral fascia to which it is loosely attached.

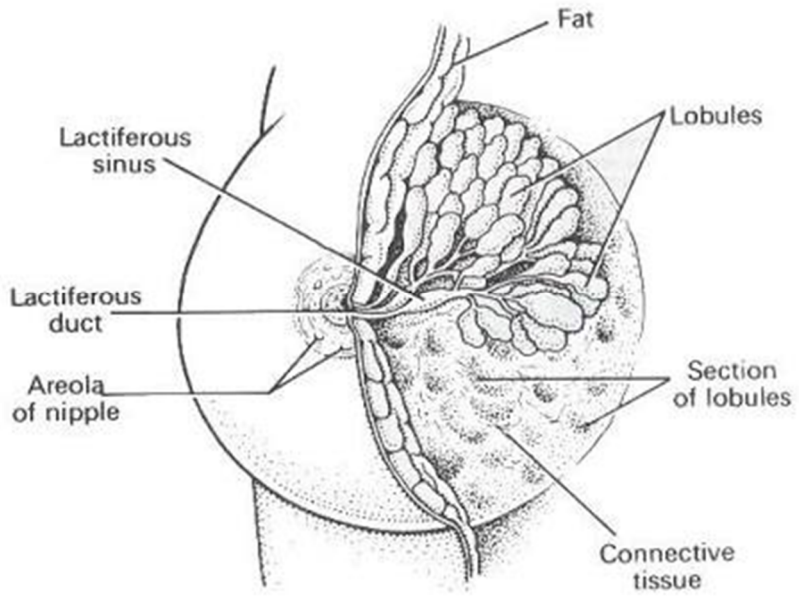
It extends from 2nd to 6th ribs and lateral border of sternum to mid-axillary line.



a prolongation of parenchymatous tissue, axillary tail runs upwards between the pectoralis major and latissimus dorsi muscles to blend with fat of axilla.

The glandular tissue consists of 15 to 20 lobules (clusters of milk forming glands, also called as acini) which enters into branching and interconnected ducts.

Just beneath the nipple the ducts enlarges as lactiferous sinus and then empty via the nipple opening. The secondary unit is a group of saccular alveoli draining into duct.



The ducts of the alveoli are lined by single layer of epithelial cells. The ducts are surrounded by myoepithelial cells which were not found around the lobules.

The myoepithelial cells are contractile and helps to more secretion along the duct system.

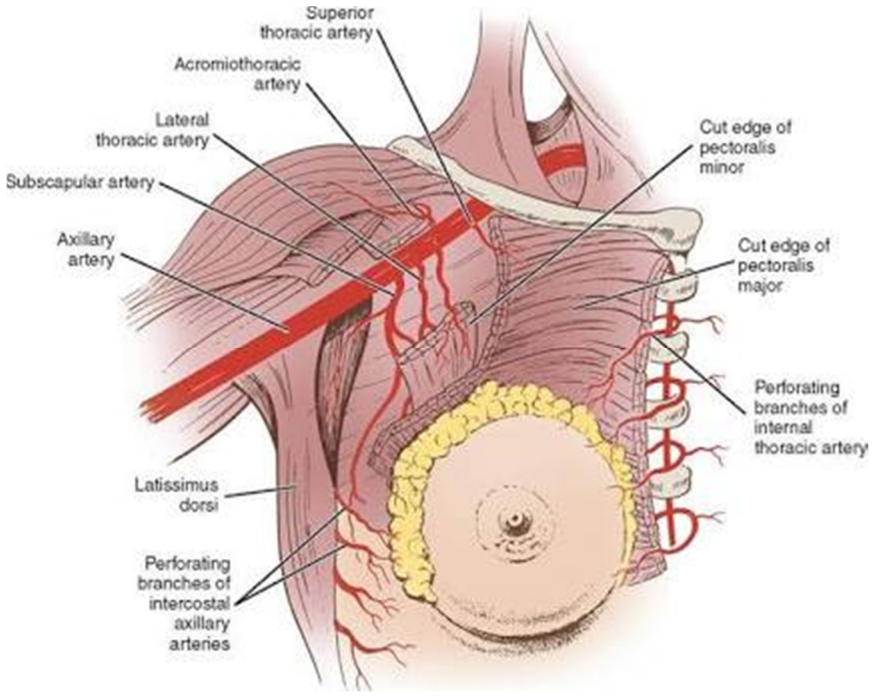
BLOOD SUPPLY OF BREAST

ARTERIAL SUPPLY

Breast is one of the extremely vascular organs.

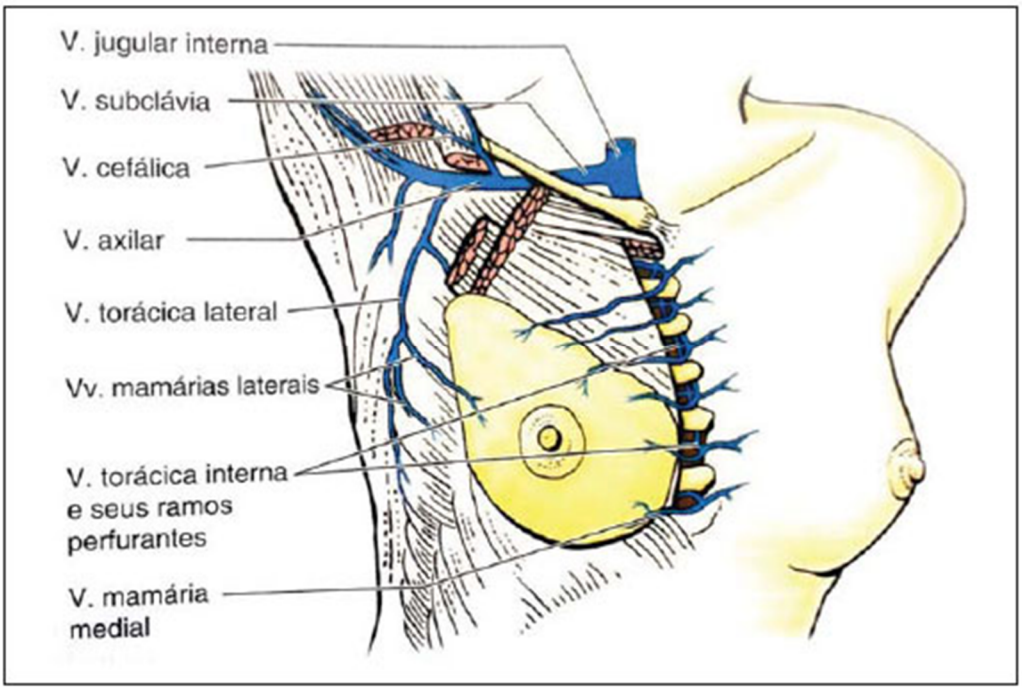
The branches of following arteries supply the mammary gland:

1. Perforating branches of internal thoracic artery which is a branch of subclavian artery.
2. Perforating branches of posterior intercostals arteries.
3. Lateral thoracic, superior thoracic, acromio thoracic branches of axillary artery.



VENOUS SUPPLY OF BREAST:

1. The veins follow the arteries.
2. All veins converge towards the base of the nipple and form an anastomotic venous circle.
3. From where veins run in superficial and deep veins.
4. Superficial vein drains into internal thoracic vein.
5. Deep vein drains into posterior intercostals, internal thoracic and axillary vein.

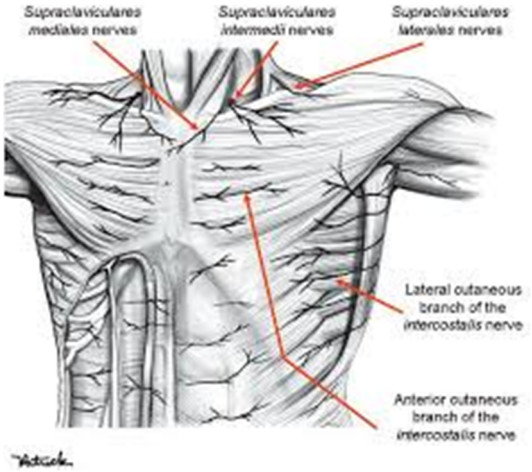


Nerve supply of breast

Mammary gland is supplied by anterior and lateral cutaneous branch of 4th to 6thintercoastalnerves

These nerve fibres are autonomic to blood vessels and smooth muscles and sensory fibres to skin.

Milk secretion is not controlled by these nerves.



Lymphatic of breast drains into following lymph nodes.

Axillary lymph node which includes

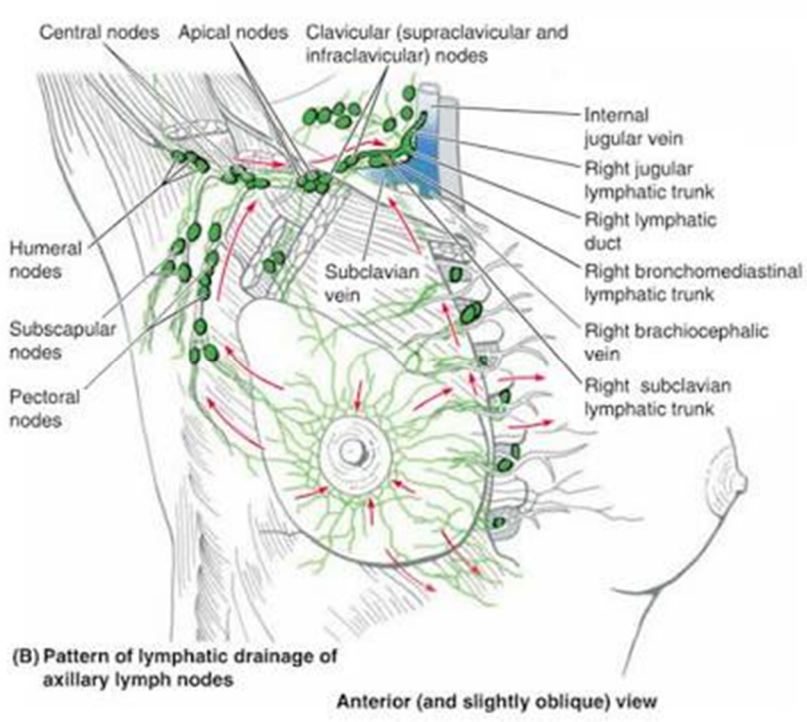
Anterior (pectoral group)

Posterior group

Lateral group

Central group

Apical group



1. Internal mammary (para sternal) nodes lies along the internal thoracic vessels
2. Some of the lymphatics also reach the supra clavicular nodes, cephalic nodes, posterior intercoastal nodes.
3. The lymphatic s of the breast divided into superficial and deep lymphatics.
4. Skin of the breast except nipple and areola drains into superficial lymphatics.
5. Parenchymal of breast, nipple and areola drain into deep lymphatics.

HISTOLOGY OF NORMAL BREAST:

1. Breast has
    - 2 types of epithelial cells
    - 2 types of stroma
    - 2 main structures

Epithelial cells:

Luminal cells

Myoepithelialcells

Stroma:

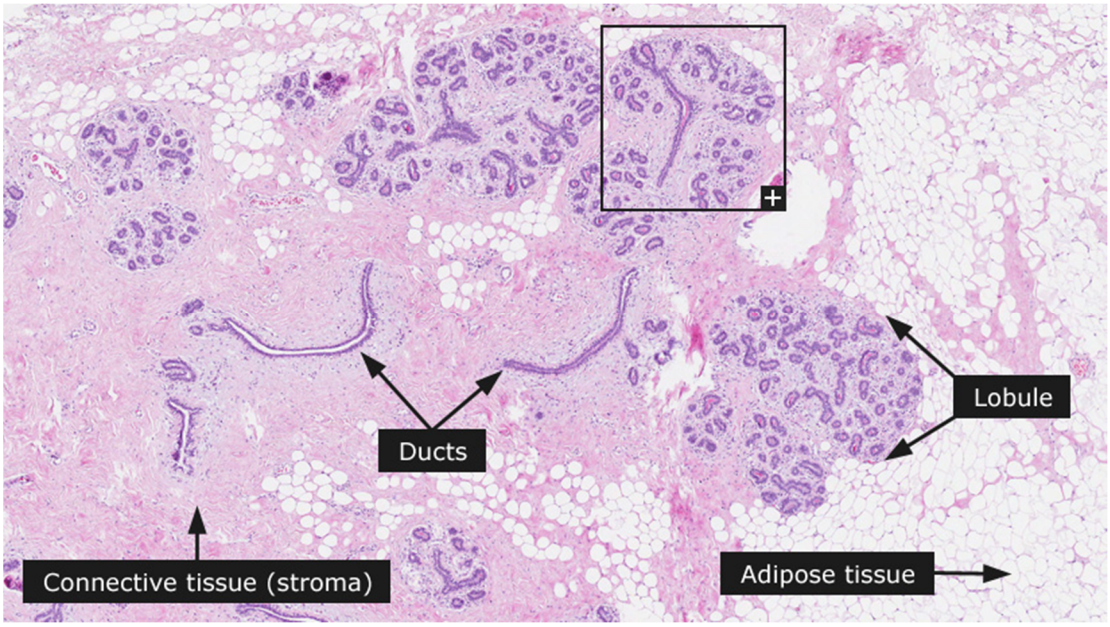
-Interlobular stroma

-Intralobar stroma

Structure:

Large ducts

TDIU



NIPPLE:

Covered by squamous epithelium (pigmented).

Near the nipple orifice majority of nipple have TOKER cells.

Lactiferous sinus have serrated contour admixed with smooth muscles, collagen and elastic fibers. Basement membrane of skin is continuous with basement membrane of duct.

AREOLA;

Pilosebaceous unit and hair present only at the periphery.

Areola has numerous sensory nerve endings.

SKIN APPENDAGES:

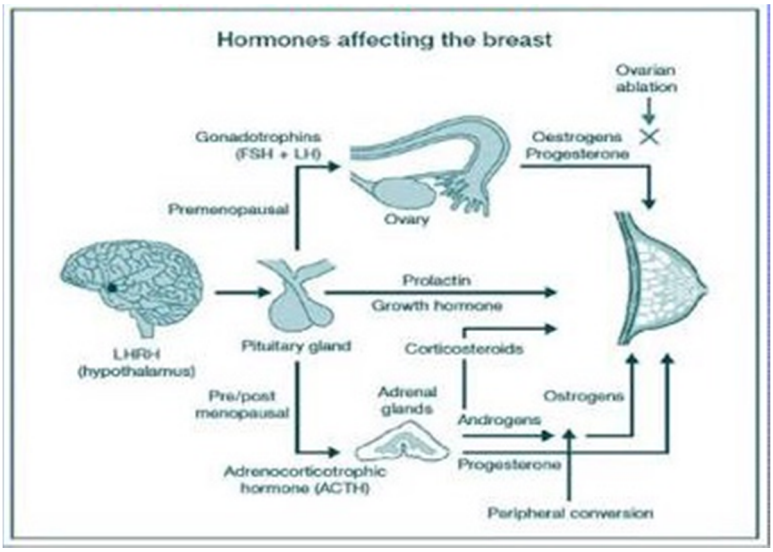
These are

- Montgomrey tubercles.
- Eccrine sweat glands and ducts.
- Apocrine sweat gland and ducts.

MAMMARIAN STROMA:

Divided into Interlobular stroma and Intralobular stroma.

PHYSIOLOGY OF BREAST



At puberty growth of the mammary gland is caused by oestrogens. Secondary alveoli are stimulated by the progesterone and prolactin hormone from hypophysis cerebri

1. Benign disease of the breast

2. Congenital and developmental abnormalities

3. Amastia- total lack of breast tissue

4. Athlelia- absence of nipple

5. Polythelia–supernumerary nipples

6. Polymastia – supernumerary breast

7. When polymastia is present in the women, the additional breast tissue can secrete milk when nipple is present.

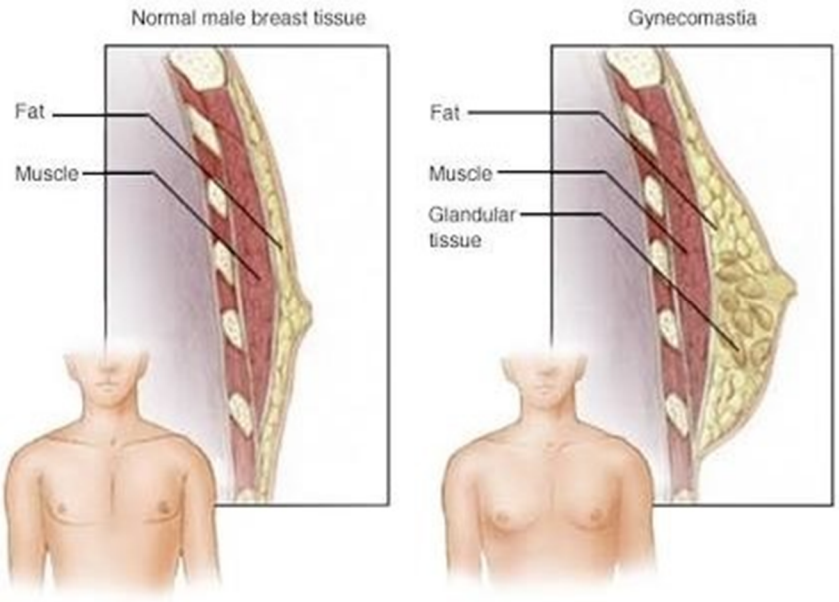
GYNAECOMASTIA

Gynecomastia is the growth is glandular tissue in male breast. It is a benign condition account s for more than 65% of male breast abnormalities. It is usually unilateral and occurs in Young man. bilateral gynecomastia is due to systemic cause.

CAUSES OF GYNECOMASTIA

Physiological causes

- Neonatal gynecomastia
- Pubertal gynecomastia
- Senile gynecomastia



Pathological causes

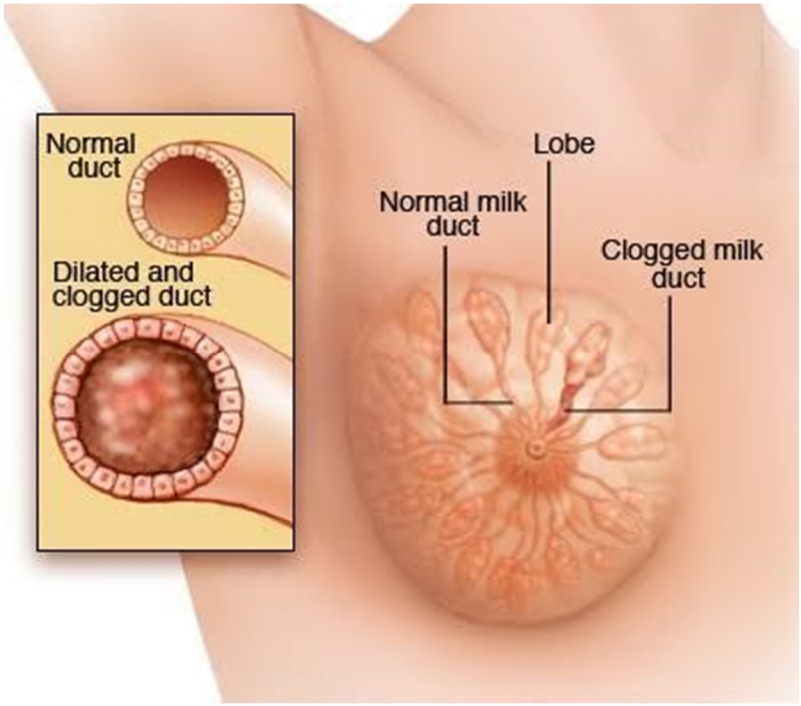
- Anorchia
- Klinefelter's syndrome
- Bilateral cryptorchidism
- Mumps
- Irradiation
- Hypopituitarism
- Isolated gonadotropin deficiency
- Endocrine tumours
- Alcoholic cirrhosis
- Hemochromatosis

Treatment of gynecomastia:

- For physiological causes reassurance is all what is needed
- Stop drugs causing gynecomastia.
- Subcutaneous mastectomy in trouble some cases.(Webster's procedure)
- Liposuction- assisted mastectomy

DUCT ECTASIA

- It is a widening of a ducts
- It is more common in women's In Their 40s and 50s.
- The most common symptom is nipple discharge which is usually gray to green in colour.
- Tenderness and redness of nipple and surrounding breast tissue may also be present.
- Microscopically – the peri ductal elastic tissue is destroyed and the surrounding tissue is infiltrated with lymphocytes and plasma cells.



Treatment

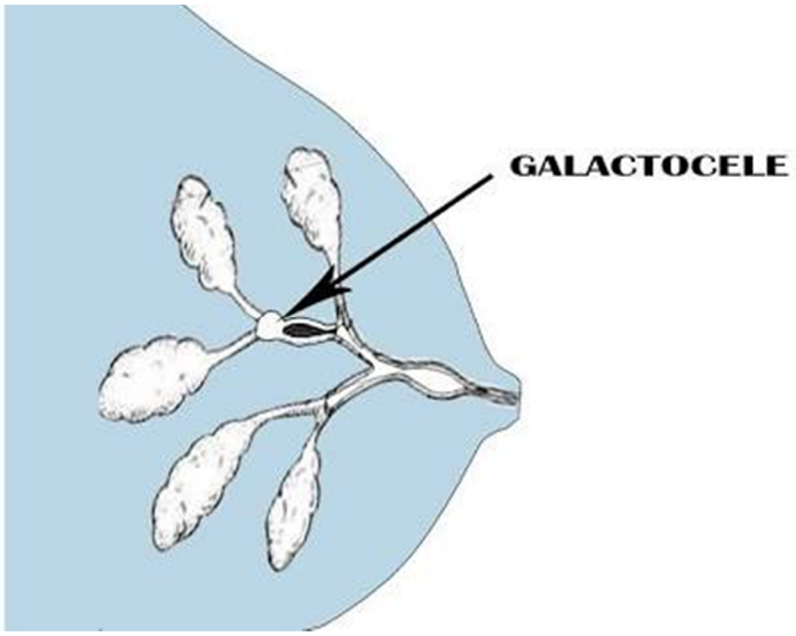
Small volume discharge managed conservatively.

Socially embarrassing discharge is treated by major duct excision.

Galactocele:

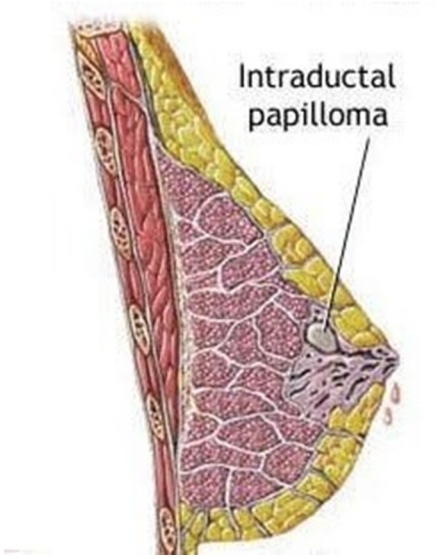
Cystically dilated terminal ductules that are filled with milk and lined by double layer of breast epithelium and myoepithelium. Classically appears as a painless lump weeks to months after cessation of breast feeding. It is probably formed by obstruction to a duct in the purpaerium. The milk retained proximal to the obstruction eventually become cheese like.

The common complications of this type of swelling are infection.



The treatment is by surgical excision

- Intraductal papilloma
- This benign lesions of the lactiferous duct wall occurs centrally beneath the areola in 75% of cases
- They most commonly produce a bloody nipple discharge, something associated with pain.
- They are solitary proliferation of ductal epithelium



Intra ductal papilloma s should be treated by excision of a duct as a wedge resection.

FIBROADENOMA

Fibroadenomas are benign tumours composed of stromal and epithelial elements. The tumours are commonly seen

In young women.

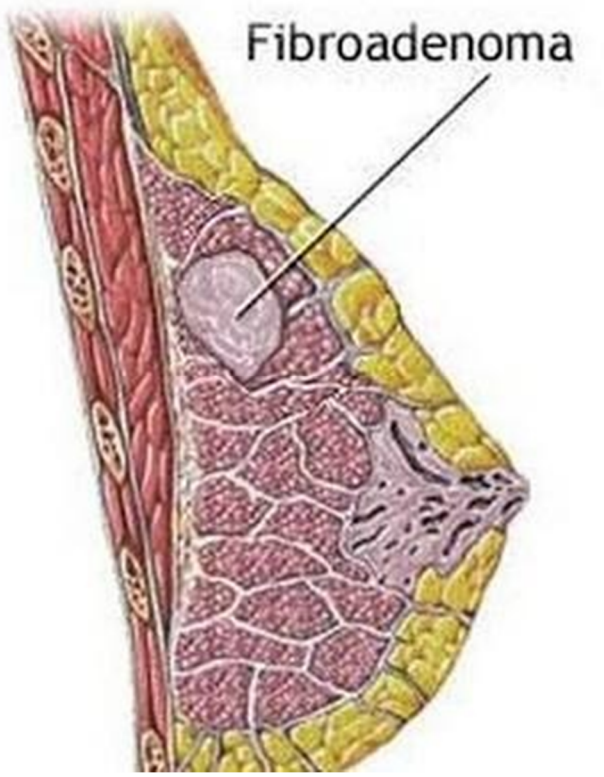
Fibroadenoma is a common well - circumscribed lesion of the breast & develop in the breast prior to menopause.

Pericanalicular tumors usually being found below the age of 30 &*intracanalicular* tumors there after.

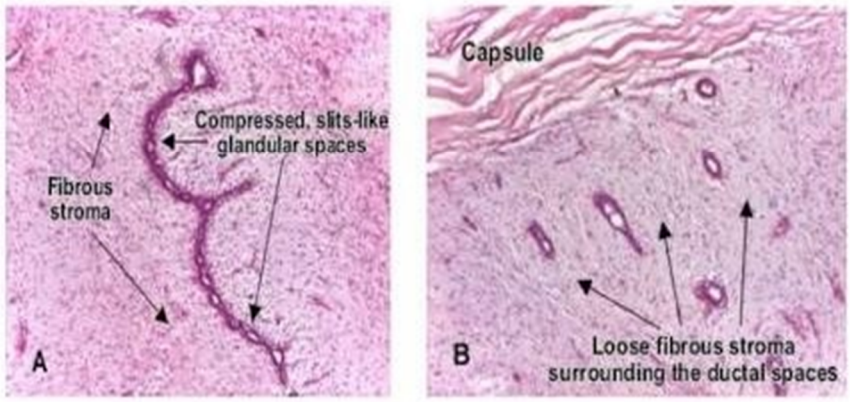
Either breast may be affected and multiple & successive tumors may develop in the same or contra-Lateral breast.

- The preicanalicular tumor forms a firm discrete mass, which is freely mobile in the breast tissue, hence the name *(BREAST MOUSE)*

- The intracanalicular tumors tend to be softer and may grow to such size that there is necrosis of the overlying skin. To such a condition the terms *serocystic disease of bordie OR cystosarcoma phylloides OR Giant fibroadenoma* have been given. However despite the implication of malignancy in the later term, the tumour is benign.



Pericanalicular/Intracnalicular



Pathophysiology:

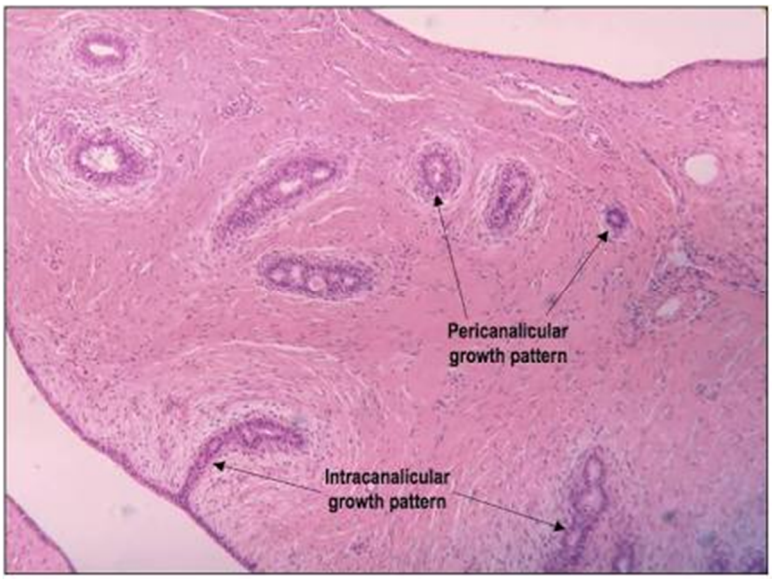
- Fibroadenomas are benign tumours that represent a hyper plastic or proliferative process in a single terminal ductal unit; their development is considered to be an aberration of normal development. The cause is unknown. Approximately 10% of fibroadenomas disappear each year, and most stop growing after they are 2-3 cm in size.
- Fibroadenomas may involutes in postmenopausal women, and coarse calcifications may develop.
- Conversely, the tumours may grow rapidly during pregnancy, during hormone replacement therapy, or during immunosuppression, in which case they can simulate malignancy.

- Fibroadenoma variants include juvenile fibroadenoma, which occurs in female adolescents.

- This swelling has been variously regarded as a simple hyperplasia of epithelial and / or connective tissue elements or as a composite neoplasm of the breast in which the epithelial & mesenchymal components grow simultaneously

CLINICAL FEATURES:

- On clinical examination, fibroadenomas may be nonpalpable or palpable, **oval, *freely mobile,* rubbery masses**. Their size varies from smaller than 1 cm in diameter to as large as 15 cm in diameter in the giant forms.
- Most commonly, the tumours are removed surgically when they are 2-4 cm in diameter. In young women, the tumours are usually palpable. In older women, the tumours typically appear as a mass on mammograms, and the tumour may be palpable or nonpalpable.
- The size of fibroadenomas also can vary during the menstrual cycle and during pregnancy.
- In the postmenopausal period, tumours regress and often develop calcifications



Types

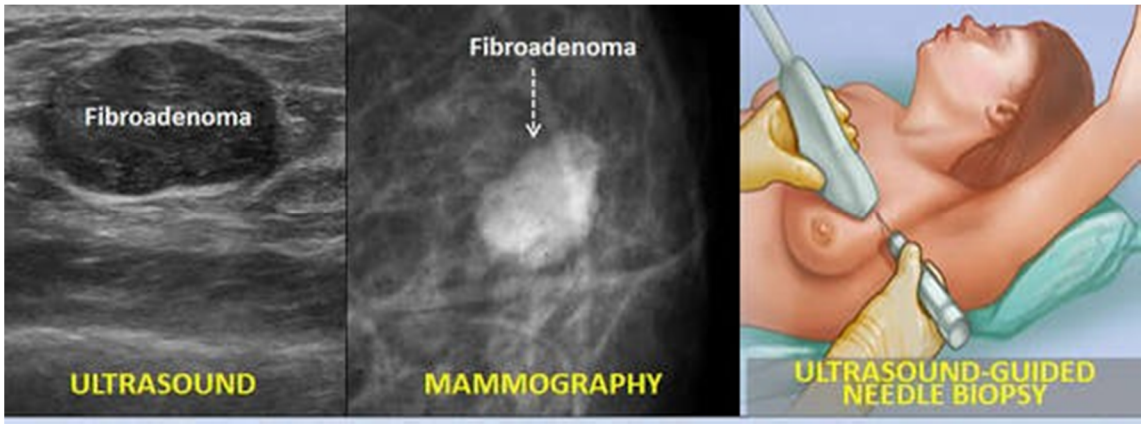
- *Solitary*
- *Few (< 5 / breast)*
- *Multiple (> 5 / breast)*
- *Giant (> 4 / 5 cms) & Juvenile*

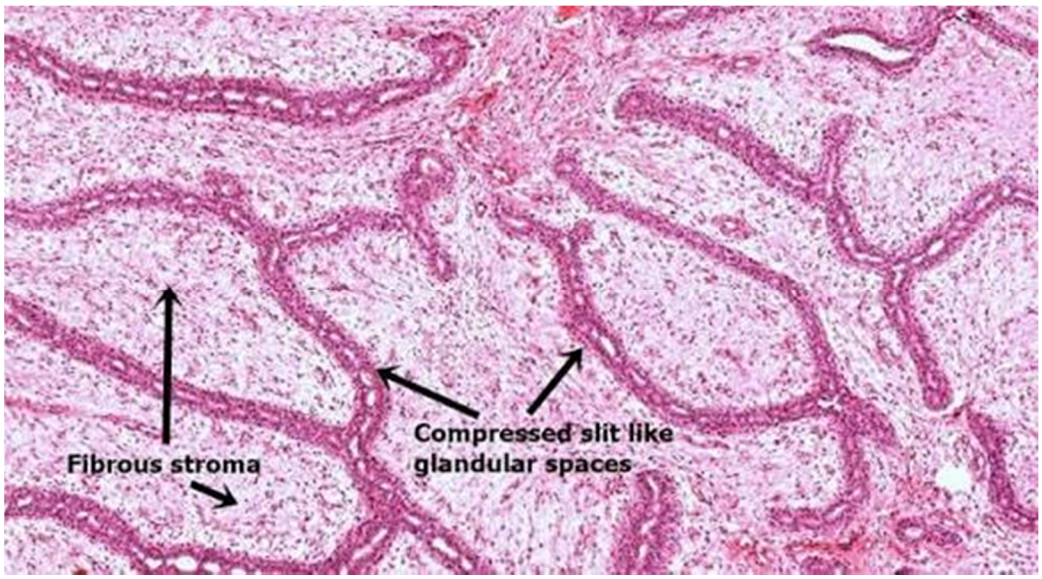
Natural history

- *Majority remain small & static 50% involutes spontaneously*
- *No future risk of malignancy*

Investigation

- Breast, fibroadenoma Sonogram. Demonstrates a hypo echoic mass with smooth partially lobulated margins that is typical of a fibroadenoma.
- Breast, fibroadenoma, Craniocaudal mammograms obtained 1 year apart demonstrates a newly developing mass in the outer part of the breast.





TREATMENT

Reassurance of the patient Excisional biopsy

The natural history of these lesions has recently been elucidated and has resulted in a change in management policy.

Over a 2 year period approximately 20% slowly increase in size, 10% reduce in size, 20% completely resolve and 50% remain static.

With knowledge of this natural history a conservative management policy can often be adopted.

In those <35 years and with a triple assessment supporting the diagnosis then observation with regular review is acceptable.

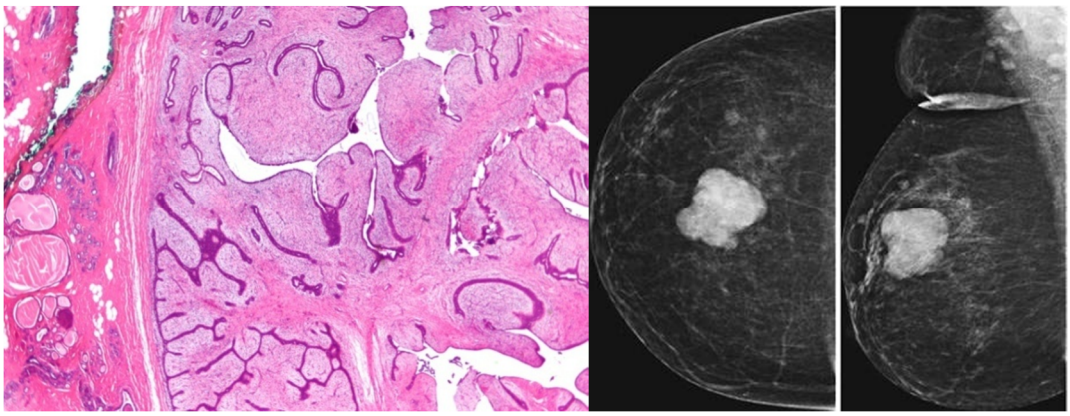
In those > 35 years and in younger patients requesting it, excision biopsy should be considered.

CYSTOSARCOMA PHYLLODES (CSP)

This is one of the rare conditions, found predominantly as benign tumour that occurs almost only in the female breast. The name cystosarcoma phyllodes were derived from the Greek words sarcoma, *which* means fleshy tumour, and *phyllo*, means leaf.

Gross appearance shows characteristics of a large, malignant sarcoma, that takes a leaf like appearance when cross sectioned, and it shows epithelial cyst like spaces when seen histologically (hence the name phyllodes).

The most common tumours is benign, so the name is misleading. But now the terminology used is phyllodes tumor.



PATHOPHYSIOLOGY OF CSP

Pathophysiology:

Phyllodes tumour is the common nonepithelial neoplasm that occurs in female breast.

Clinically presents as a sharply demarcated, smooth texture and freely movable mass. It presents as large tumour, and the average size is more than 5 cm. Some lesions are also more than 30 cm in size that have been reported.

TREATMENT:

Surgical Care:

The preferred surgery is wide local excision with a rim of normal tissue of about 1cm of clearance.

If the tumour to the breast ratio is sufficiently high to provide a satisfactory cosmetic appearance by segmental excision or total mastectomy, followed by with or without flap reconstruction, is an alternative.

Radical procedures are usually not warranted. If clinically suspicious nodes present then lymph node dissection is to be done. Mostly all of these nodes are reactive and they do not have malignant cells in them.

FIBROCYSTIC DISEASE

- Commonest lesions of female breast are fibrocystic disease.
- Two common descriptions are Cystic lobular hyperplasia & fibrocystic disease of the breast.

- Cystic hyperplasia is nothing but a variant of normal changes of the breast that occur with menstruation.
- Usually presents bilaterally.
- It is most painful in the premenstrual period
- Benign condition of breast has varying Incidence, in relation to age.
- Of which 20% are Menstruating age group.
- Of the premenopausal age group it constitutes 30-50%.
- The other names are mammary dysplasia, Cystic disease, Cyclic Mastopathy, Cystic Hyperplasia.

Path physiology of fibrocystic disease:

- The cause is mostly unknown Hormonal basis.
- Of the hormones Oestrogen , Progesterone and Prolactin
- Thyroid Methylexanthiones
- The causative was considered to be Oestrogen predominance over progesterone.
- High Oestrogen levels in the Luteal phase was shortened

- Progesterone levels are reduced to 1/3 normal. So the females having progesterone deficiency are at a fivefold high risk of premenopausal breast cancer.
- 70% due to Corpus Luteal Deficiency and Anovulation.
- Pre Menstrual Tension syndrome is risk factors.

Prolactin-

Increased in about 1/3 of women most probably due to the dominance of Oestrogen in pituitary.

Thyroid –

Low levels sensitize epithelium of mammary gland to Prolactin.

Methylexanthiones-

High intake of coffee, tea, cold drinks chocolate is a high risk.

Path morphology

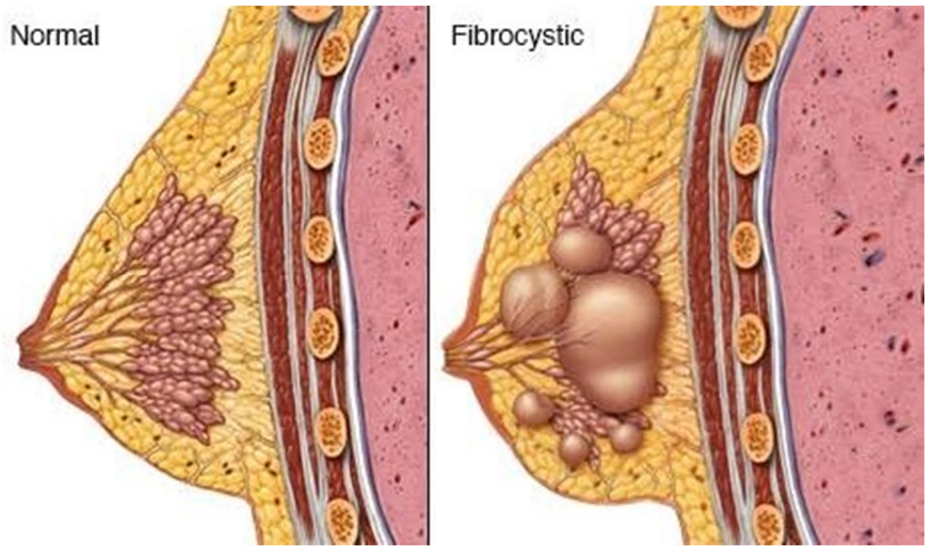
Proliferation of the connective and epithelial tissues are stimulated by oestrogen.

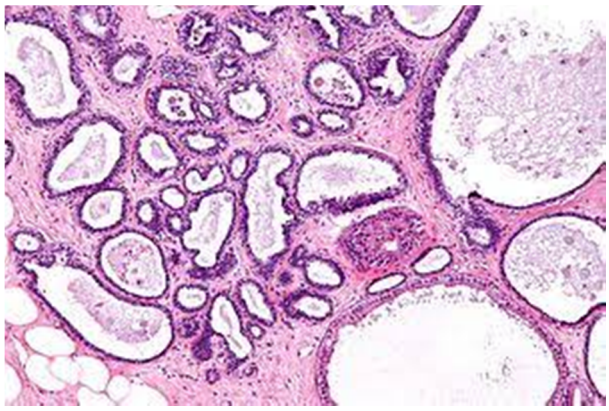
The polymorphism of fibrocystic disease is:

- Fibrosis
- Formation of cyst, proliferation of epithelial cells,
- Atrophy of the lobular-alveoli
- Course of fibrocystic disease
- It represents a clinical problem presents in approximate 30% of patients.

Predominantly found in,

- Abnormal menstrual cycle
- Nulliparous women
- Spontaneous abortions history
- oral contraceptives nonusers
- early menarche
- Late menopause.
- Most present in their mid 30s and 40s.





There are three phases clinically,

- **Phase I** - Stromal fibrosis which is moderate, just started hardness in the breast tissue and tenderness in premenstrual breast
- **Phase II** – Increased fibrosis causing increased hardening and tenderness, formation of cyst, nodularity
- **Phase III** - Fibrosis is more Pronounced and tenderness, formation of macro cyst.

DIAGNOSIS OF FIBROCYSTIC DISEASE

Triple Assessment

Symptoms and Signs -

- Many months to several years of history.
- Ovulating women, multiparous women, and patients using oral contraceptives rarely presents with fibrocystic disease.
- Tenderness of breast is observed in most of the patients.
- Irregular menses, dysmenorrhoea, menometrorrhagia, or ovarian cysts are found to be associated in 40% to 60%

Nipple secretion-

Spontaneous discharge or secretion can be expelled from the nipple. Cytological features are amorphous material (fat, proteins), ductal cells, erythrocytes, and / or foam cells. Straw yellow, greenish, or bluish coloured fluid present.

TREATMENT OF FIBROCYSTIC DISEASE

MEDICAL

Goal-

- Progression should be stopped
- For relieving pain
- To Soften breast tissue

Indicated when-

- FDB not increasing in size
- Nipple discharge not present
- Psychological effect ont present

Surgical-

Indicated when-

- Size is progressively increasing
- Discharges that are Serous / Serosanguineous / bloody.
- disturbed psychology

MEDICAL-

Hormones

OC pills-

- They are protected from FBD
- High potency of Progestogen

Progestogens-

- Have to be started in the luteal phase for a period of 9-12 months
- Of which 80% get relief and have to restart the therapy in 40%

Danazol-

- One of the most effective therapy
- Basis are the ovarian suppression
- 200-600mg/day is the usual dosage.

Medical-

- This is one of the ineffective modalities
- Diet therapy- Restriction of caffeine
- Diuretics
- Agents that containing iodine.
- Thyroid hormone ,Evening Primrose oil Vitamin E & B6 Dihydroergotamine and Antiprolactin drugs

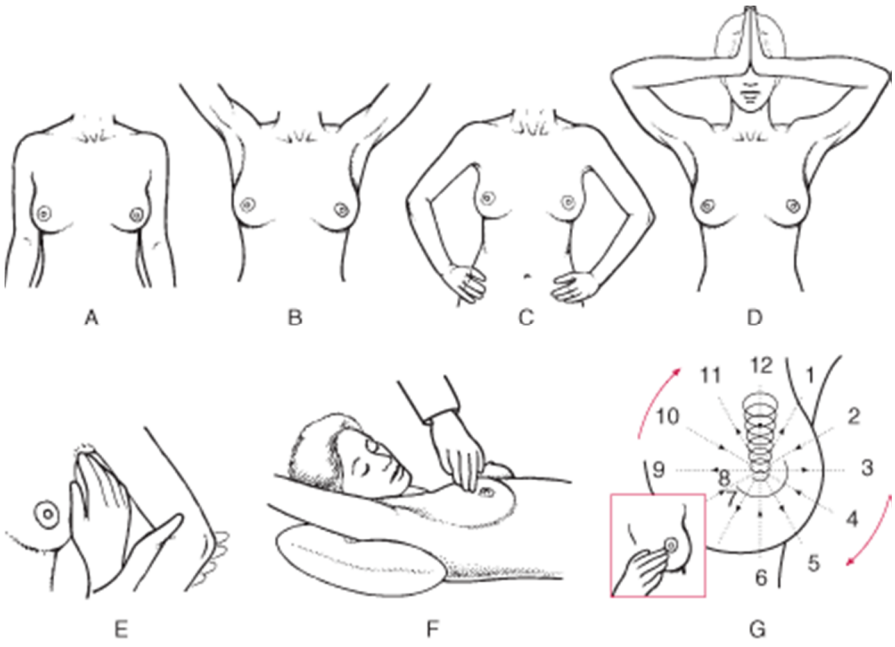
Surgical treatment-

- In most severe cases, surgical removal of lumps can be done.

CLINICAL EXAMINATION

The patient is examined in the following posture:

1. Arms by the side of body and patient sitting
2. Arms raised above head
3. Hands over hips alternatively contraction and releasing.
4. Patient leaning forward
5. Lying posture



INSPECTION:

Inspection of the patient in sitting posture arms by the side of her body:

1. Breast
    - Position compared with opposite Brest
    - Site
    - Shape
    - Any mass
    - Ulcer
2. Skin over the breast
    - Dilated veins
    - Dimple
    - Puckering
    - Retraction
    - Peau'dOrange
    - Nodules
    - Ulceration
    - Fumigation
3. Nipple
    - Presence
    - Position
    - Number

- Size
- Shape
- Discharge

4. Areola
   - Colour
   - Size
   - Surface
5. Arm and forearm
   - Edema
   - Nodules
6. Axilla
7. Supraclavicular fossa
   - Inspection of the patient with arms raised above the head:
   - Look for
   - Peau d' Orange
   - Fixity
   - Retraction of nipple
   - Inspection on leaning forward:
   - Fixity to chest wall
   - Inspection on Contraction and relaxing pectoralis major:
   - Swelling becomes prominent or not

PALPATION:

Palpate systemically from areola, concentrically outwards.

1. Local temperature and tenderness
2. Swelling :
    - Number
    - Site
    - Size
    - Shape
    - Margins
    - Consistency
    - Fluctuations
    - Tenderness
3. Fixity to skin
4. Fixity to chest wall
5. Intrinsic mobility

Examination of nipple:

1. retraction
2. Crackles
3. Discharge

Examination of axillary lymph node:

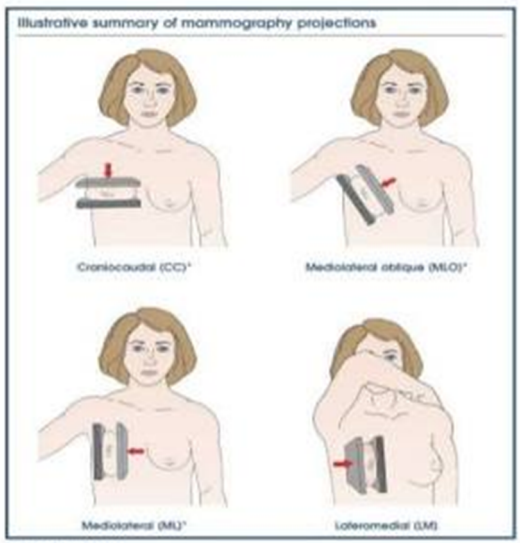
- All groups should be examined separately.

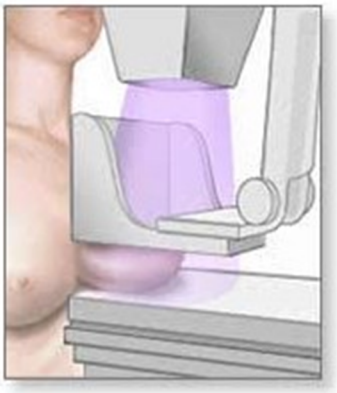
MAMMOGRAPHY

- Low voltage, high ampere x-rays
- 300 mA and 40ky exposed
- This is one technique of taking x-rays known as seems strahlung type x-rays
- Delivers radiation of 0 1cGy per study by comparison chest x ray delivers only 25% of this dose
- Sensitivity increases with the age as the breast tissue becomes less dense.(used in age more than 40 years)

Two views:

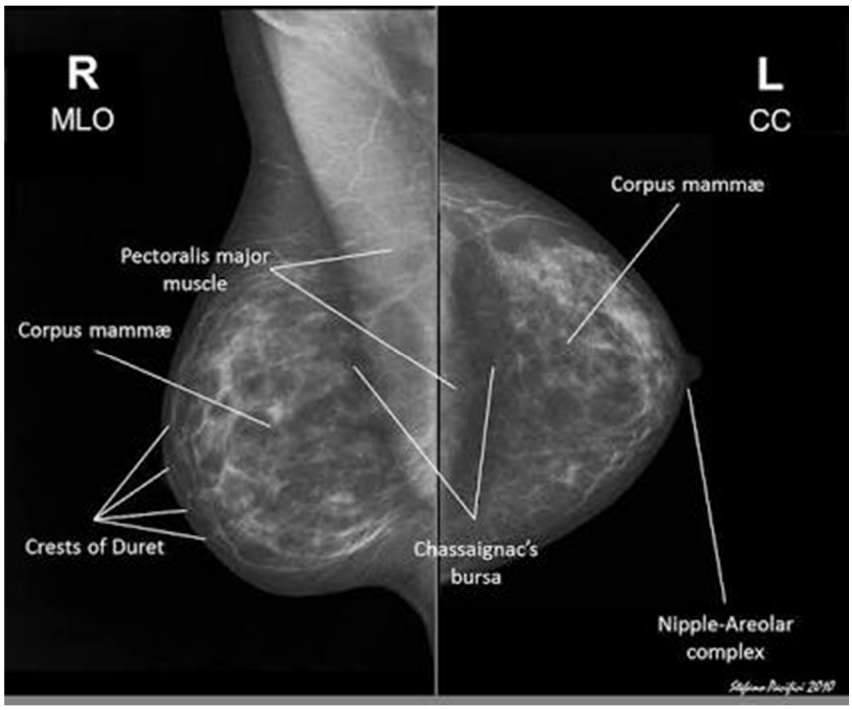
- Craniofacial
- Mediolateral oblique view





INDICATION

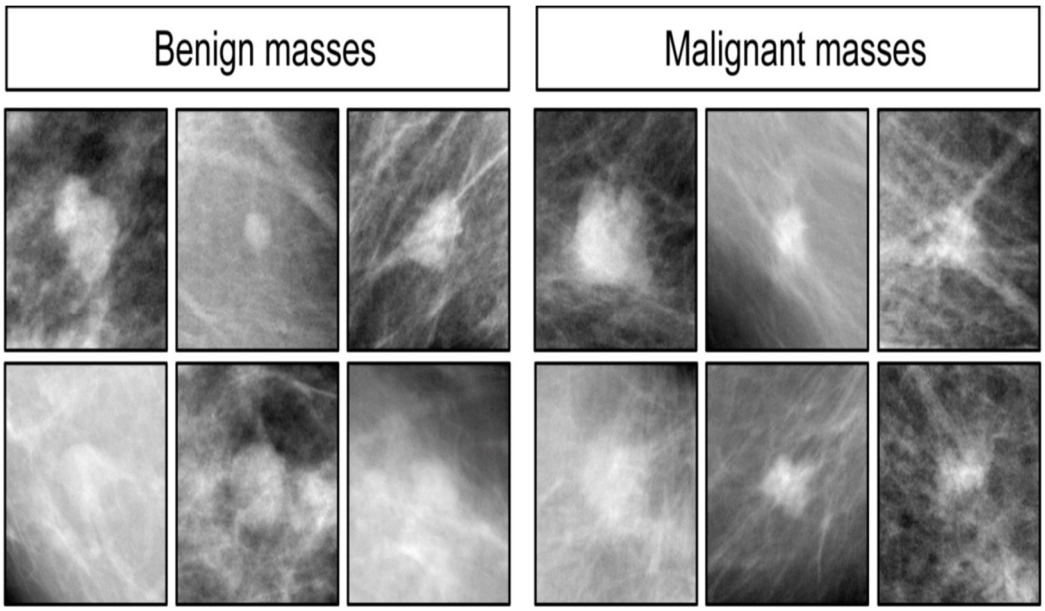
- Age greater than 50 years
- Age greater than 40 years with risk factors
- Already operated one side
- If we plan for can conservative surgery, then we have to rule out multimodal involvement.
- Mammography guided biopsy



Rounded borders with lobulated appearance in mammography are more in favour of the phyllodes tumour

BIRADS Staging:

BI-RAD class	Description	Probability of malignancy (%)	Follow-up
0	Needs additional evaluation		Diagnostic mammogram, ultrasonographic image
1	Normal mammogram	0	Yearly screening
2	Benign lesion	0	Yearly screening
3	Probably benign lesion	< 2	Short interval follow-up
4[a]	Suspicious for malignancy	20	Biopsy
5	Highly suspicious for malignancy	90	Biopsy
6	Biopsy-proven malignancy	100	Treatment



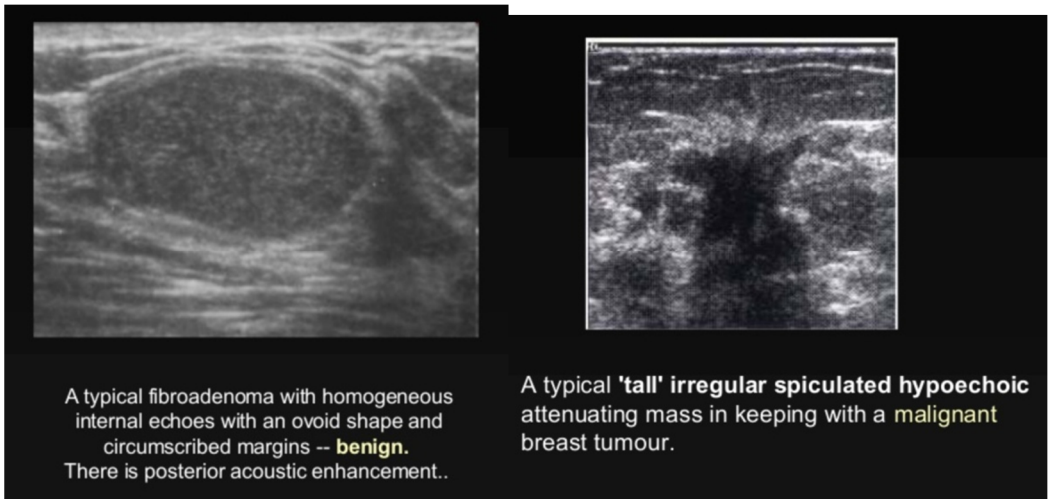
ULTRASOUND

- It is an adjuvant to mammography
- Many interventional procedures in breast lesions can be done under its guidance
- It differentiate solid masses from cystic masses
- A linear 7mhz array transducer is used, but transducer up to 10 to 13 MHz can be used most preferably.

Benign Lesions Look Like

- hyper or hypo echogenic
- Shape of ellipsoid
- Well circumscribed margins
- Malignant lesions look like

- Margins are irregular
- Hypoechoic to surrounding tissue
- Posterior acoustic shadow present
- Vertical growth appearance.



FINE NEEDLE ASPIRATION CYTOLOGY

INTRODUCTION

FNAC is a technique where a thin bore needle is used to obtain cells from a lesion and smears done, for cytopathological diagnosis.

This basis of this technique is that the tumor cells are less cohesive and can be aspirated easily.

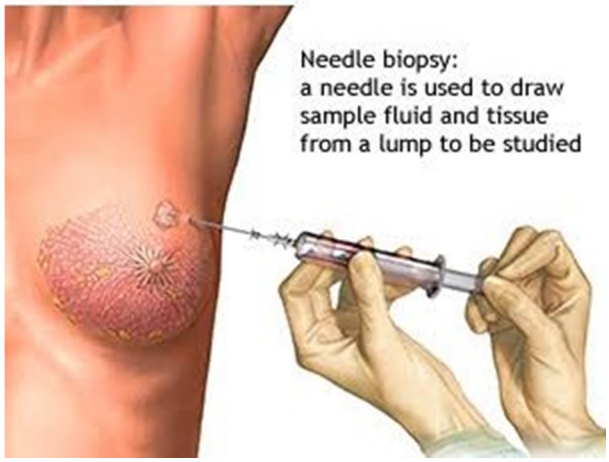
Using this technique we can diagnose the breast lumps, thyroid nodules, liver disease, subcutaneous soft tissue mass, salivary gland diseases and oral diseases.

This is very helpful in the lesions of oral cavity which is very vascular, and an open biopsy can cause bleeding which becomes difficult to control.

FNAC solves these problems, by using a 10 ml Syringe with which adequate material can easily be obtained, from an intraoral or extra oral site without any discomfort to the patient. There will be no risk of bleeding.

A subsequent surgery may not needed in some cases and patient can be planned for appropriate treatment.

Reports of FNAC can be prepared within 24 hours of sampling. It gives early, rapid information to the surgeon about the lesion the surgeon dealing with.



HISTORICAL PERSPECTIVE

Martin and Ellis introduced this technique in 1930 in the United States, but it never became widespread.

Since the 1950s it has been used extensively in Scandinavia and in Holland.

Fine Needle for aspiration were first introduced in 1950 in Europe by Lopez-Cardozo in the Netherlands and Soderstrom in Sweden

Publication of the Zajicek from Karolinska Hospital present in Stockholm that brought aspiration cytology to the level of international alterations.

ADVANTAGE

- Simple outpatient technique
- fast diagnosis
- cost effective
- multiple sites can be sampled in the one sitting
- diagnostic accuracy is very high

Many other test such as bacterial culture, immunocytochemistry, flow cytometry, cytogenetics, polymerase chain reaction,etc. are possible from FNAC material.

LIMITATIONS

- Tissue architecture is lost.
- We cannot detect Capsular invasion and lymphovascular invasions.
- In situ versus invasive carcinoma is difficult to differentiate.
- Good training is needed for correct interpretation of results.

IN CLINICAL INVESTIGATION

It was first used as a mean for confirming a clinical suspicion of local recurrence or distant metastasis of known cancer, so that further surgical intervention may not be needed.

It is also used in Inflammation, infection, degenerative conditions, in diagnosis and monitoring of graft rejection transplantation surgery

This can be used as an Alternative to frozen section

Per operative cytology can be done.

Successful reporting of FNAC depends on four fundamental requirements:

- Representative samples from the lesion should be obtained.
- Adequate sample size in terms of cells and other tissue components should be obtained.
- Correct smearing and processing of sample should be done.
- With correct clinical/radiological information biopsy should be obtained.

EQUIPMENTS NEEDED:

1. **NEEDLES**: 22-23 gauge needle.

2. **Syringes**: 20 ml syringe

3. **Pistol handle-** as shown below for negative suction:

4. **Sterile container: P**hysiological saline or Hank's balanced solution as preservative.

5. **Slides:** clean, dry & free of dirt and grease.

6. Haemocytometer **cover slip of 0.4mm** gives better control on smearing pressure and a proper spread.

7. **Fixatives:** 70-90% ethanol, Carnoy's fixative, 10% buffered formalin, gluteraldehyde can be used.

8. **Stains-** to differentiate various structures.

9. **Microscopes –**for viewing the slides

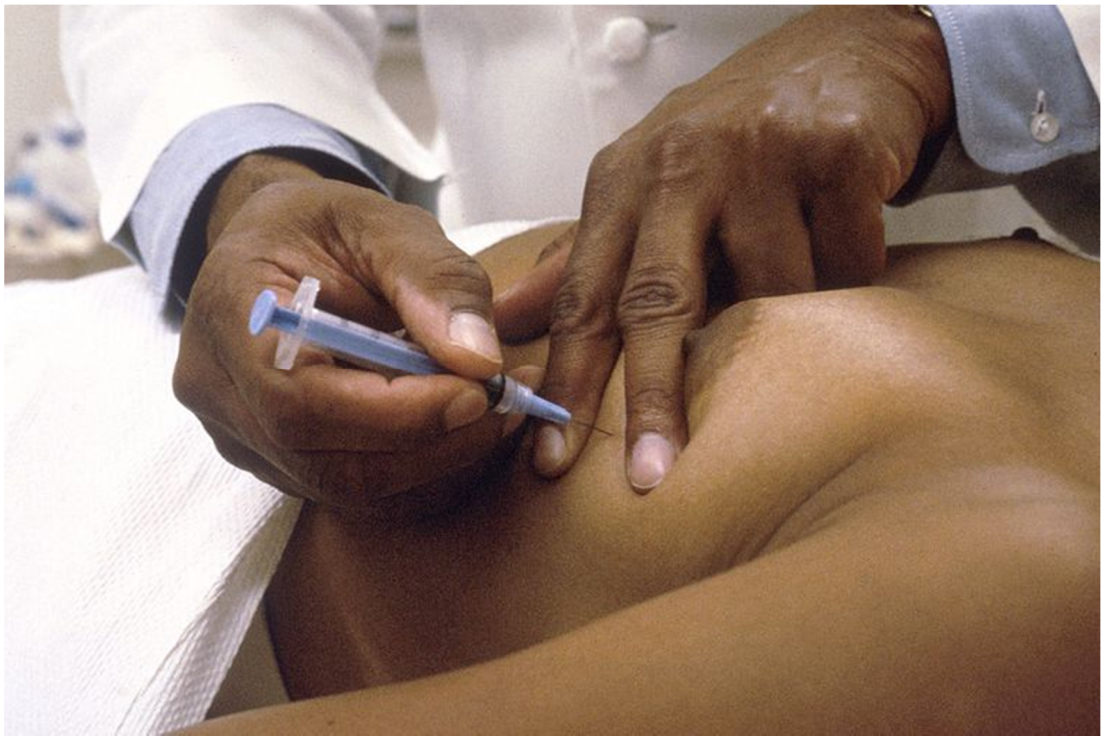
TECHNIQUE OF FINE NEEDLE ASPIRATION:

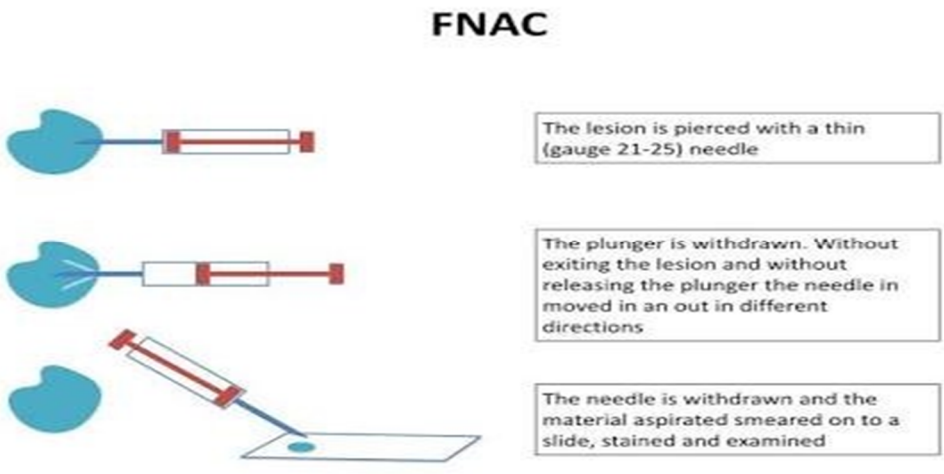
There are 2 techniques:

1. FNAC with aspiration

2. FNAC without aspiration

FNAC WITH ASPIRATION





Steps:

-Biopsy site should be cleaned by spirit and betadine.

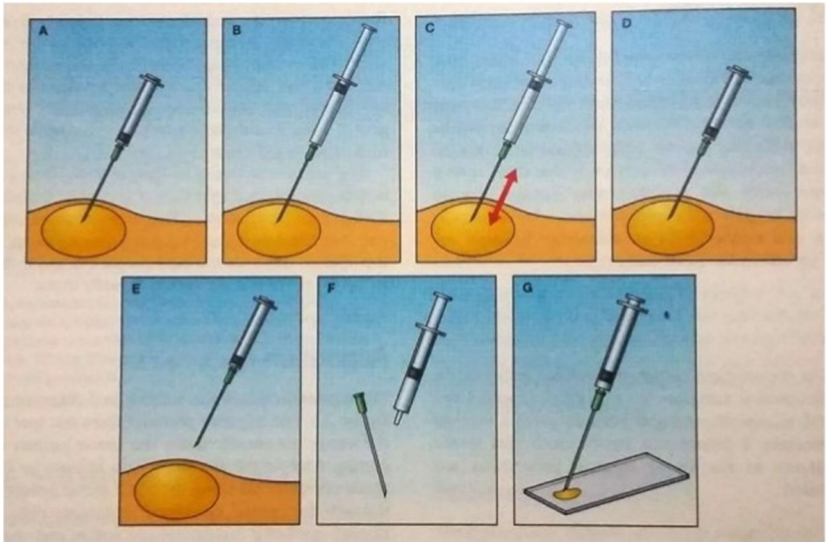
-The swelling is gently palpated and needle is introduced and is moved in a to and fro fashion. When this act is performed a gentle negative suction is also created by withdrawing the piston.

-on a slide, the aspirated material is expelled

-The smearing is done, by gently pressure by pressing the upper slide on the lower one.

-Following this, air is taken into the syringe and needle hub is reattached to the syringe.

FNAC without aspiration:



- Zajdela introduced this technique in 1987.
- He devised based on the fact that the capillary pressure that has been generated in a fine needle is sufficient enough to keep the separated cells inside the lumen of the needle.

CAUSES OF FAILURE TO OBTAIN A REPRESENTATIVE SAMPLE:

- The target tissue has been missed by the needle while taking the samples.
- Needle has entered the lesion where cystic/necrotic/hemorrhagic area present which are devoid of diagnostic cells.
- Needle may have entered a dominant benign mass and have missed a small nearby malignant lesions.
- Fibrotic/desmoplastic tissue yield a scant amount of cells.

SAMPLE PROCESSING:

A clean & dry microscope slide are used in which the sample are expelled and smearing done.

SMEARING

DIRECT –

DRY

Dry smearing can be done if the sample is creamy in consistency and consists of large amount of cells suspended in the background of small amount of tissue fluid.

WET

Wet smearing is done when there are smaller number of cells which are suspended in fluid or blood.

- **Indirect smearing is done**: samples obtained are processed by centrifugation.
- Other alternative technique are Millipore nucleopore filtration and

  Thin prep technique

FIXATION & STAINING

FNAC uses two techniques:

- **Simple Air drying** which is followed by staining with a haematological stain such as MAY GRUNWALD- GIEMSA STAIN , Jenner-Giesma, Diff-Quik

- **Alcohol fixation** and then followed by staining according to PAP or with H&E.

COMPLICATIONS

- Usually there are no complications
- Some of the complications are Bleedings, hematoma, emphysema (in lung).
- One of the Rare complication is anaphylactic reaction due to accidental rupture of hydrated cyst.

CORE NEEDLE BIOPSY

It is a procedure in which a chunk of tissue is removed using specialised device, in contrast to fine needle aspiration cytology in which the individual cells are aspirated with syringe.

- More reliable than cytology.
- Less invasive than surgical biopsy.
- Allows planning of therapy.

Disadvantages are:

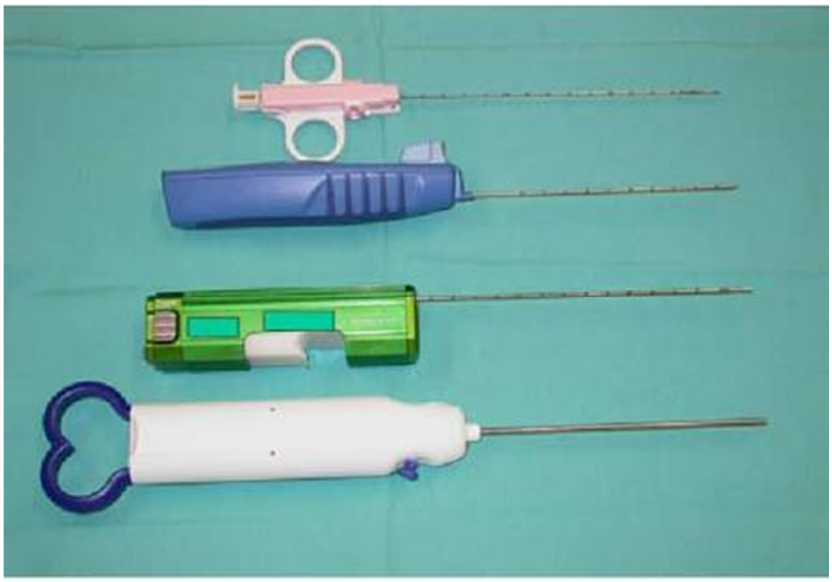
- More expensive than cytology.
- More invasive than cytology.

Indication:

1. As a first approach :
   - Large lesions clearly malignant at imaging (when future treatment is neo-adjuvant therapy.
   - When there is no palpable mass but micro calcifications are present.
2. After fine needle aspiration cytology:
   - When results are Inconclusive.

- When the findings are different between clinical ,radiological and cytology
- Stereotactic - guided vacuum assisted core biopsy.
- Conventional true –cut biopsy.

Choice of needle:



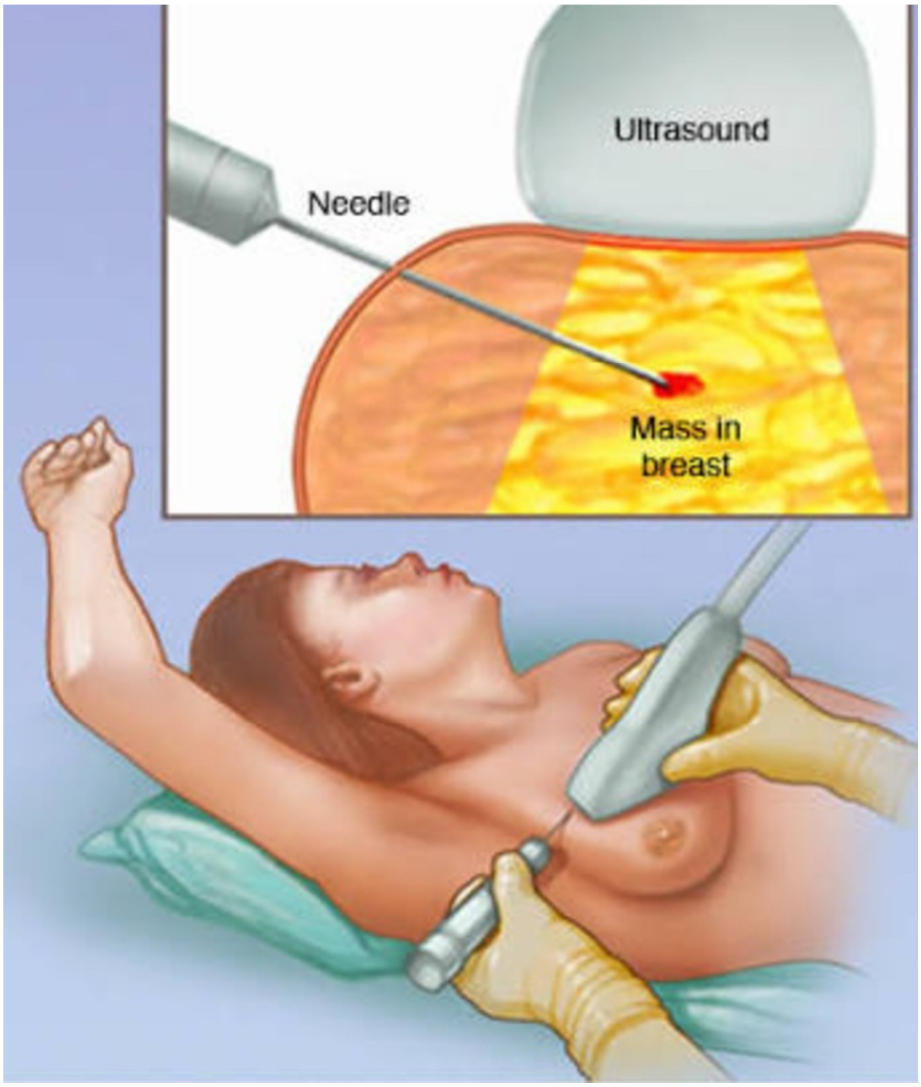
Core needle biopsy is usually done with 14G needle but ultrasonograpy guided core needle biopsy can be done with smaller needle of size 16G/18G.

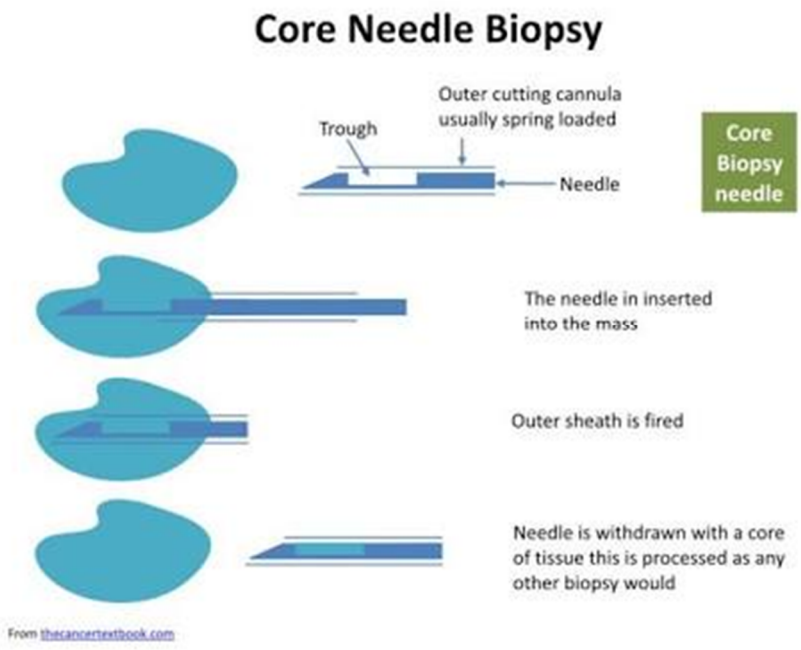
Advantages of smaller needle:

- They are sharper and can penetrate more easily through firm dense breast tissue.
- Bleeding risk is minimal.
- Local anaesthesia or skin incision are not required.

PROCEDURE:

Under aseptic precaution patient in supine position parts painted and draped, the swelling of interest is palpated and fixed, a small nick is made using 11 size blade. Using a conventional or self retained gun swelling is entered and biopsy done.





Processing:

- At least 3 hematocilin and eosin stained sections are cut attained interval of 50mirons.
- Specimens are radio graphed to look for micro calcification.
- Fibroepithelial lesions are categorised under B3. In UK BSP category.
- ER ,PR and HER 2 status can be accessed in core needle biopsy.
- Core needle biopsy accurately identifies of more than 90% cases of benign and malignant disease.

METHODOLOGY

STUDY DESIGN: Prospective co-hort study.

SAMPLE SIZE: n= 40

INCLUSION CRITERIA: Patient's who are satisfying the PADDINGTON'S clinico-pathological suspicion score in department of surgery, CMCH during the period of JAN 2017 to DEC 2017 are included in to the study.

PADDINGTON'S CLINICOPATHOLOGICAL SCORE

Clinical findings
- (i) Sudden increase in size in a longstanding breast lesion
- (ii) Apparent fibroadenoma > 3 cm diameter or in patient >35 years

Imaging findings
- (i) Rounded borders/lobulated appearance at mammography
- (ii) Attenuation or cystic areas within a solid mass on Ultrasonography

FNAC findings
- (i) Presence of hypercellular stromal fragments
- (ii) Indeterminate features

ANY 2 features mandate core biopsy

Patient's with score of >2 are included in this study.

EXCLUSION CRITERIA:

- Invasive malignant breast tumour.
- Immunocompromised state.
- Coagulation disorders.

OUT COME:

Phyllodes tumour is diagnosed to pre –operatively using core needle biopsy.

Recurrence and re-operation of tumour is reduced.

RESULTS

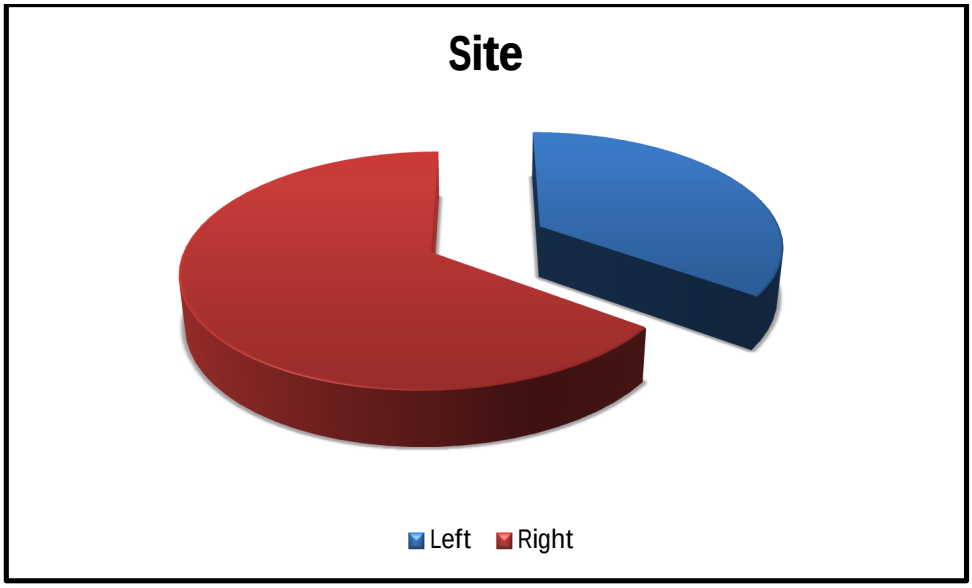
The collected data were analysed with IBM.SPSS statistics software 23.0 Version .To describe about the data descriptive statistics frequency analysis, percentage analysis were used for categorical variables and the mean & S.D were used for continuous variables. The Receiver Operator Characteristic (ROC) curve analysis was used to find the Sensitivity, Specificity ,PPV and NPV on comparison of efficacy of the tools with Histopathology .To find the significance in categorical data the Fisher's Exact was used. In all the above statistical tools the probability value .05 is considered as significant level.

SITE OF OCCURRENCE OF TUMOUR:

TABLE 1:SITE OF OCCURRENCE OF TUMOUR:

Site	Frequency	Percent
Left	14	35.0
Right	26	65.0
Total	40	100.0

From the above tabular column, the frequency of lesion occurring over right is found to be on the higher side. Of the 40 patients studied, 26 presented with lesion over right side and 14 over the left side. The percentage of occurrence over right is 65% and of the left is 35%.



DURATION OF THE PRESENTATION OF LUMP:

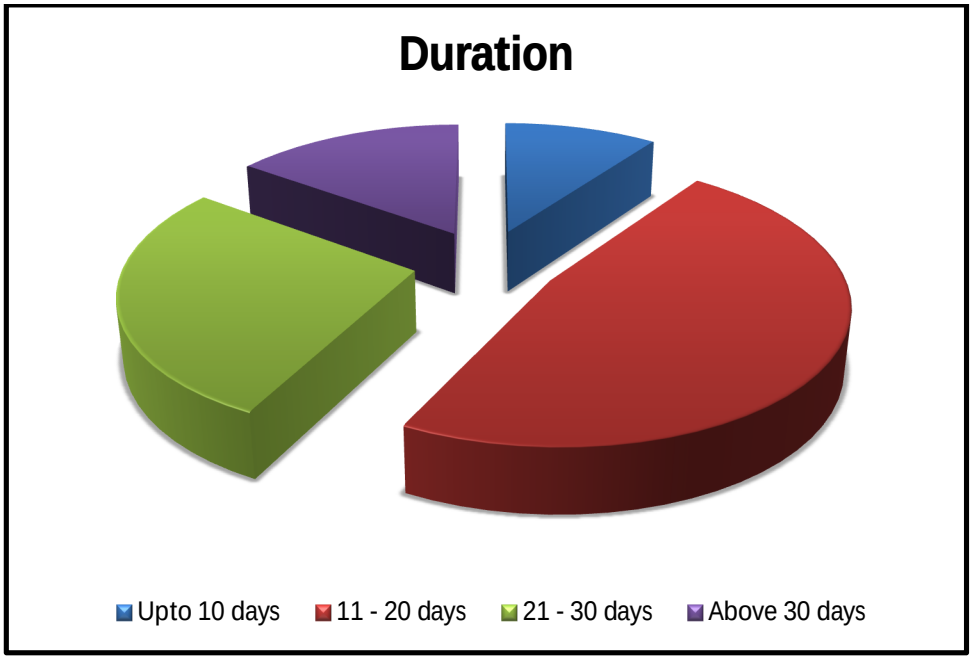
TABLE 2:DURATION OF THE PRESENTATION OF LUMP:

Duration	Frequency	Percent
Upto 10 days	4	10.0
11 - 20 days	19	47.5
21 - 30 days	11	27.5
Above 30 days	6	15.0
Total	40	100.0

From the above tabular column, most of patients have the duration of the lesion between 11 to 20 days, of the percentage of about 47.5%, which constitutes about 19 patients. About 11 patients have the duration between 21 to 30 days, constitutes a percentage of 27.5%.very less number of patients presents less than 10 days and more than 30 days.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Duration	40	10	60	22.85	12.601
Valid N (list wise)	40				

The mean duration of presentation among the 40 patients included in study is 22.85 and a standard deviation of 12.601.



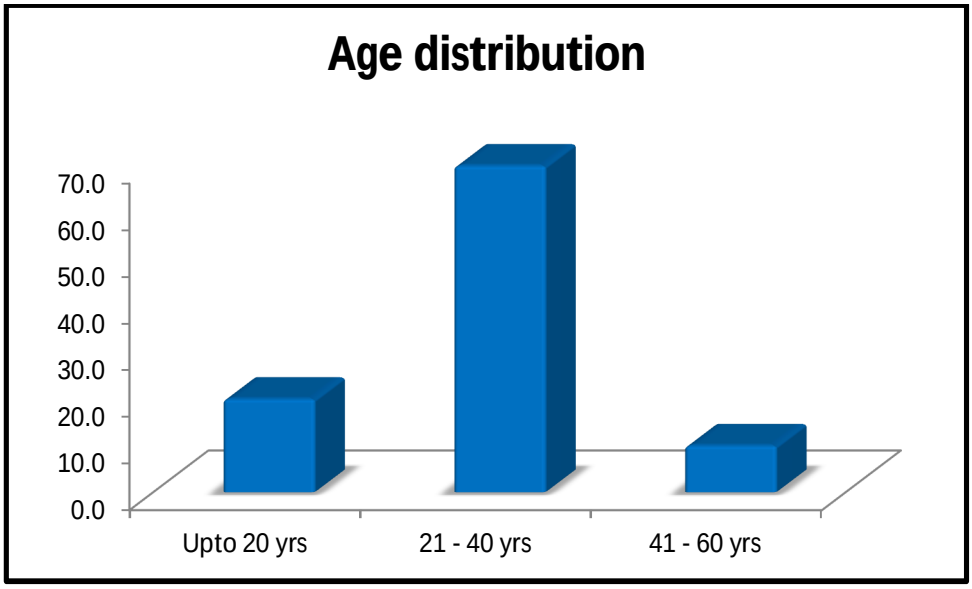
AGE OF PRESENTATION:

TABLE 3: AGE OF PRESENTATION:

AGE RANGE	Frequency	Percent
Up to 20 yrs	8	20.0
21 - 40 yrs	28	70.0
41 - 60 yrs	4	10.0
Total	40	100.0

From the above tabular column, the frequency of occurrence of fibroepithelial lesions are more in 21 to 40 years of age, which accounts for about 70% of patients. Up to 20 years and more than 40 years the percentage of occurrence is 20% and 10% respectively.

The following graph shows the age distribution of fibroepithelial lesions,

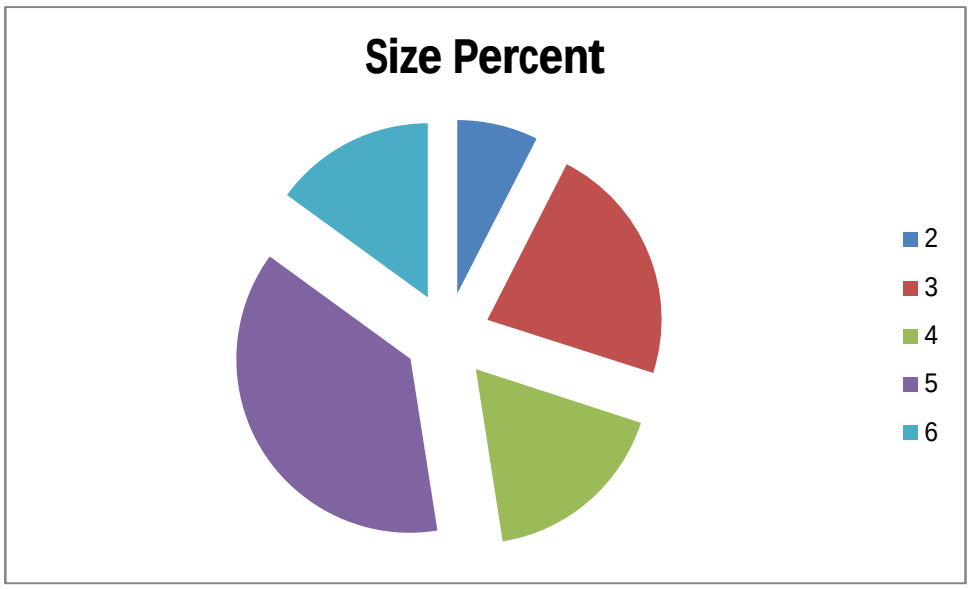


SIZE OF THE LESION:

TABLE 4:SIZE OF THE LESION:

Size	Frequency	Percent
2	3	7.5
3	9	22.5
4	7	17.5
5	15	37.5
6	6	15.0
Total	40	100.0

From the above tabular column, most of the lesions have 5 cm of diameter, which accounts for 15 patients, of percentage of 37.5%. About 9 patients have a size of 3cm which constitutes about 22.5%. 7 cases have a size of 4cm, of a percentage of 17.5%.6 cases have a size of 6cm, of a percentage of 15%.



MAMMOGRAPHIC FINDINGS:

Table 5 : MAMMOGRAPHIC FINDINGS:

Mammography findings	Frequency	Percent
Yes	22	55.0
No	18	45.0
Total	**40**	**100.0**

From the above tabular column, mammographic findings of suspicion of phyllodes tumour is found in 22 patients which constitutes about 55%.

Case Processing Summary	
Mammogaphy	Valid N (listwise)
Positive[a]	22
Negative	18

Area Under the Curve				
Test Result Variable(s): Histopathology				
Area	Std. Error	Asymptotic Sig.[b]	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
.639	.089	.135	.465	.812

On comparing with the results of histopathology of excised specimen.

The area under the curve is 0.639.

- Sensitivity- 73.33
- Specificity-56.00
- PPV-50.00
- NPV-77.78
- Accuracy -64.67

Chi-Square Tests					
	Value	**df**	**Asymp. Sig. (2-sided)**	**Exact Sig. (2-sided)**	**Exact Sig. (1-sided)**
Pearson Chi-Square	3.259[a]	1	.071		
Continuity Correction[b]	2.182	1	.140		
Likelihood Ratio	3.357	1	.067		
Fisher's Exact Test				.104	.069
Linear-by-Linear Association	3.178	1	.075		
N of Valid Cases	40				

From the above tabular column, the p value of the mammographic findings is more than .05 which shows there no significant co- relation of mammographic findings to phyllodes tumour.

ULTRASONO GRAPHY:

TABLE 6:USG FINDINGS:

USG finding	Frequency	Percent
Yes	24	60.0
No	16	40.0
Total	40	100.0

From the above table USG findings suggestive of phyllodes tumour is found in 24 cases, constitutes a percentage of 60%.

Case Processing Summary	
USG	Valid N (listwise)
Positive	24
Negative	16

Area Under the Curve				
Test Result Variable(s): Histopathology				
Area	Std. Error[a]	Asymptotic Sig.[b]	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
.708	.083	.027	.546	.871

On comparing with the results of histopathology of excised specimen.

- Area under the curve- 0.708
- Sensitivity- 86.67
- Specificity- 56.00
- PPV-54.17
- NPV-87.50
- Accuracy -71.33

Chi-Square Tests					
	Value	**df**	**Asymp. Sig. (2-sided)**	**Exact Sig. (2-sided)**	**Exact Sig. (1-sided)**
Pearson Chi-Square	7.111[a]	1	.008		
Continuity Correction[b]	5.444	1	.020		
Likelihood Ratio	7.764	1	.005		
Fisher's Exact Test				.010	.008
Linear-by-Linear Association	6.933	1	.008		
N of Valid Cases	40				

From the above tabular column the p value of USG Findings is equal to 0.01,which shows that there is a significant correlation of USG findings to phyllodes tumour which is statistically significant.

FNAC:

TABLE 7:FNAC FINDINGS:

FNAC	Frequency	Percent
PT	6	15.0
F	34	85.0
Total	40	100.0

From the above tabular column, of the 40 patients 34 have FNAC findings in favour of fibroadenoma, 6 to phyllode tumour which contributes to 85% and 15% respectively.

Case Processing Summary	
FNAC	Valid N (list wise)
Positive[a]	6
Negative	34

Area Under the Curve				
Test Result Variable(s): Histopathology				
Area	Std. Error[a]	Asymptotic Sig.[b]	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
.868	.057	.004	.756	.979

On comparing with the results of histopathology of excised specimen.

- Area under the curve-0.868
- Sensitivity-40.00
- Specificity-100.00
- PPV-100.00
- NPV-73.53
- Accuracy -70.00

Chi-Square Tests					
	Value	**df**	**Asymp. Sig. (2-sided)**	**Exact Sig. (2-sided)**	**Exact Sig. (1-sided)**
Pearson Chi-Square	11.765[a]	1	.001		
Continuity Correction[b]	8.837	1	.003		
Likelihood Ratio	13.626	1	.000		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	11.471	1	.001		
N of Valid Cases	40				

From the above tabular column the p value of FNAC is less than 0.01 which is highly statistically significant and there is a significant correlation of FNAC finding to phyllodes tumour.

CORE NEEDLE BIOPSY:

TABLE 8: CORE NEEDLE BIOPSY FINDINGS:

Core needle biopsy	Frequency	Percent
PT	16	40.0
F	24	60.0
Total	40	100.0

From the above tabular column, out of the 40 patients core needle biopsy diagnosed 16 cases of phyllodes tumour, constitutes a percentage of 40%. The rest 60% (i.e) 24 patients were diagnosed as fibroadenoma.

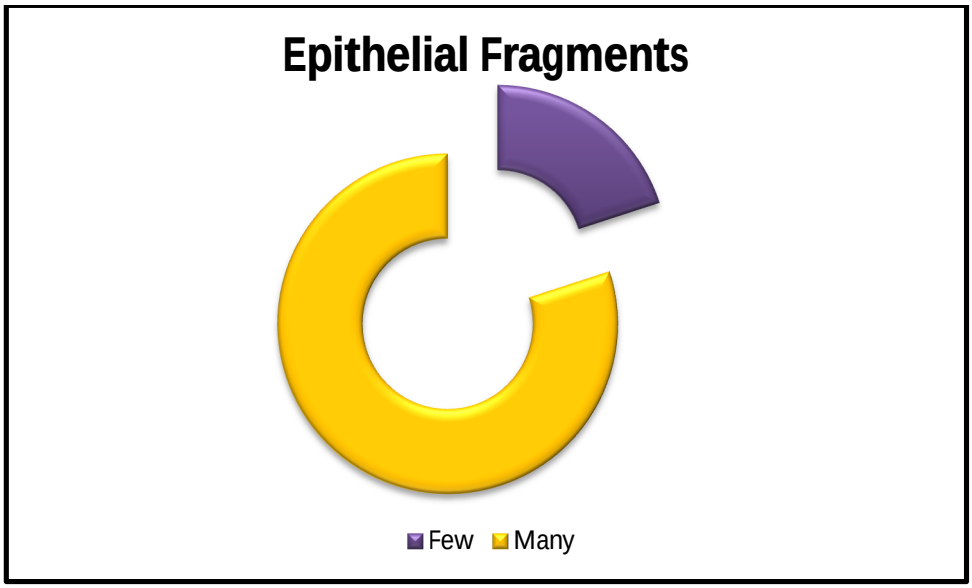
The diagnosis by core needle biopsy is based 4 features,

- epithelial fragments
- stormal fragments
- mitotic figures
- spindle cells

TABLE 9: EPITHELIAL FRAGMENTS:

Epithelial Fragments	Frequency	Percent
Few	8	20.0
Many	32	80.0
Total	40	100.0

From the above table, 80% of patients have many epithelial fragment and 20% have few fragments, of about 32 and 8 patients respectively.



Number	Frequency	Percent
Few	21	52.5
Many	19	47.5
Total	40	100.0

From the above table, 47.5%of patients have many stormal fragment and 52.5% have few fragments, of about 19 and 21 patients respectively.

TABLE 10: CELLULARITY:

Cellularity	Frequency	Percent
1+	17	42.5
2+	13	32.5
3+	10	25.0
Total	40	100.0

From the above table, 42.5% of patients have 1+ cellularity that comprise of 17 patients, 32.5% have 2+ and 25% have 3+celularity. This constitutes about 13 and 10 patients respectively.

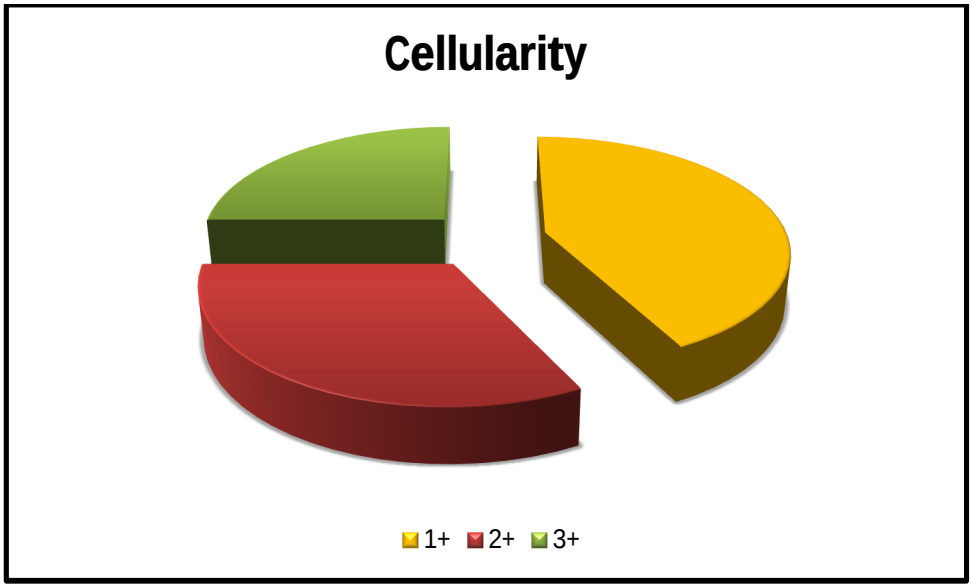


TABLE 11: SPINDLE CELLS:

Spindle Cells	Frequency	Percent
Negative	22	55.0
Positive	18	45.0
Total	40	100.0

From the above table, 45% of patients have spindle cells that constitutes 18 patients and rest 55% spindle cells are absent which comprise of 22 patients.

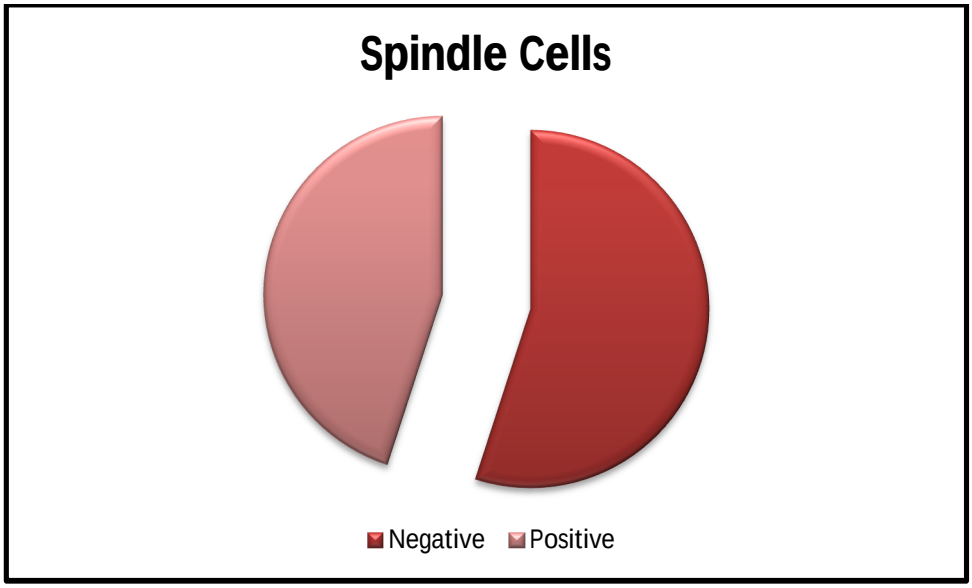
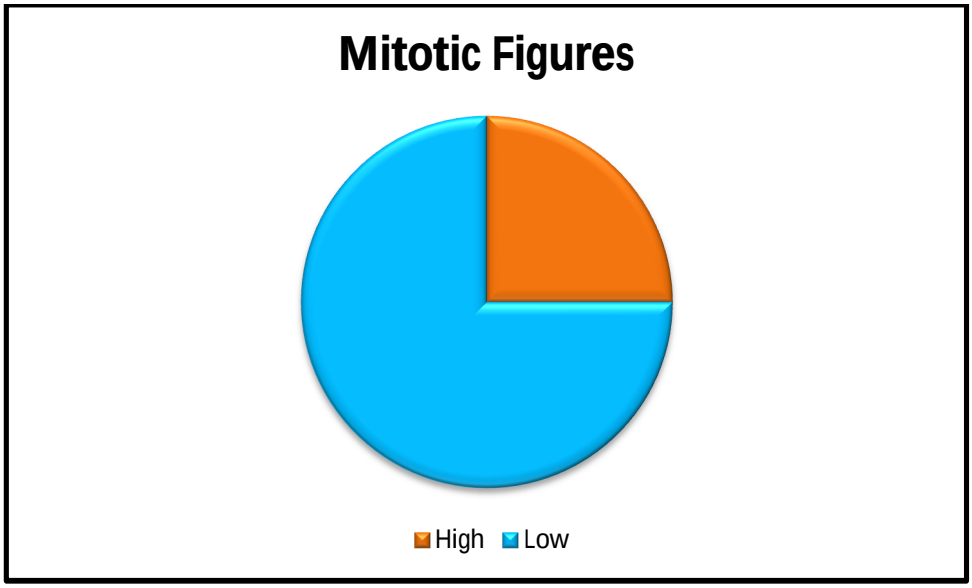


TABLE 12: MITOTIC FIGURES:

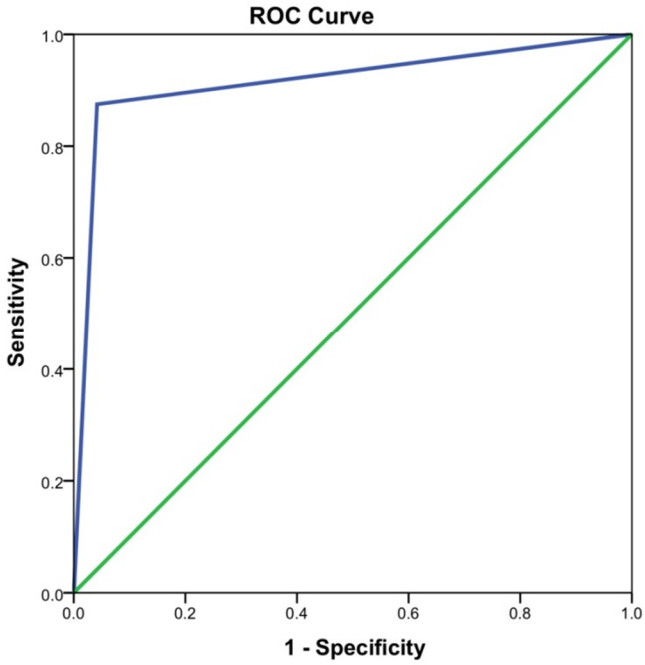
Mitotic Figures	Frequency	Percent
High	10	25.0
Low	30	75.0
Total	40	100.0

From the above table, 75% of patients have low mitotic figures that constitutes 30 patients and the rest 25% have high mitotic figures that constitutes 10 patients.



Case Processing Summary	
core needle biopsy	Valid N (listwise)
Positive[a]	16
Negative	24

Area Under the Curve				
Test Result Variable(s): Histopathology				
Area	**Std. Error**[a]	**Asymptotic Sig.**[b]	**Asymptotic 95% Confidence Interval**	
			Lower Bound	**Upper Bound**
.917	**.054**	**.0005**	**.810**	**1.000**



On comparing with the results of histopathology of excised specimen

- Area under the cuve-0.917
- Sensitivity-93.33
- Specificity-92.00
- PPV-87.5
- NPV-95.83
- Accuracy -92.67

Chi-Square Tests					
	Value	**df**	**Asymp. Sig. (2-sided)**	**Exact Sig. (2-sided)**	**Exact Sig. (1-sided)**
Pearson Chi-Square	28.444[a]	1	.000		
Continuity Correction[b]	25.000	1	.000		
Likelihood Ratio	32.555	1	.000		
Fisher's Exact Test				.0005	.000
Linear-by-Linear Association	27.733	1	.000		
N of Valid Cases	40				

From the above tabular column the P value of the core needle biopsy is less 0.01 which shows that core needle biopsy is highly significant in diagnosing phyllodes tumour.

On comparing the detection percentage of fibroadenoma and phyllodes tumour by various tool the following tabular column is obtained,

	Mammography	**USG**	**FNAC**	**Core needle biopsy**	**Histopathology**
PT	55.0	60.0	15.0	40.0	37.5
F	45.0	40.0	85.0	60.0	62.5

The same is explained in the graph

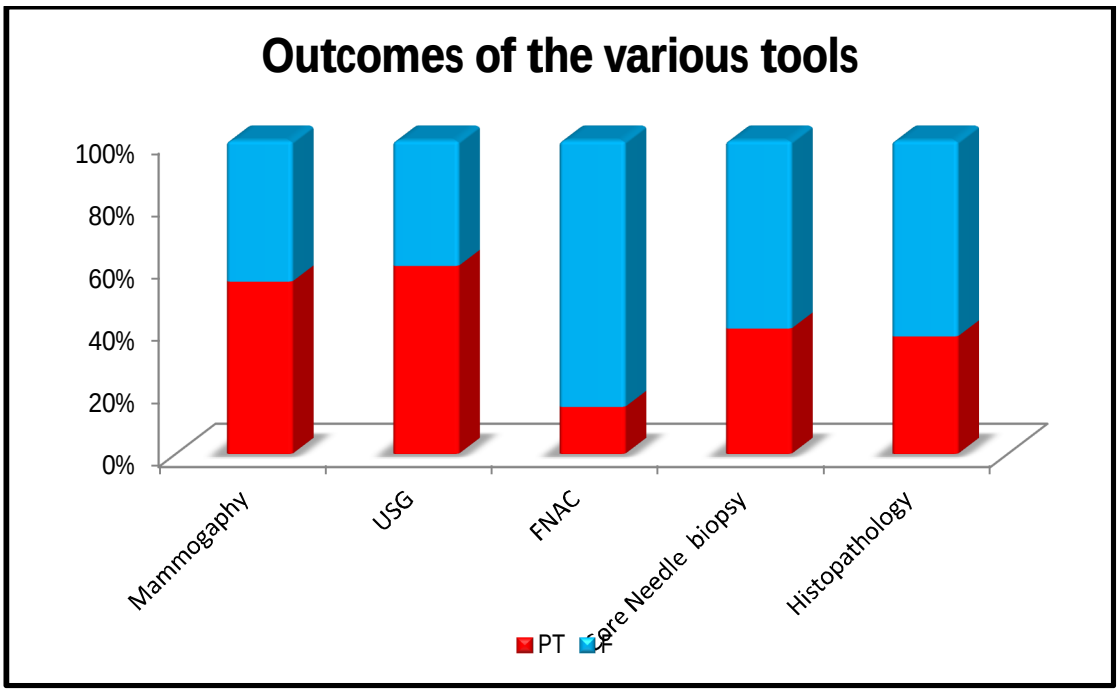
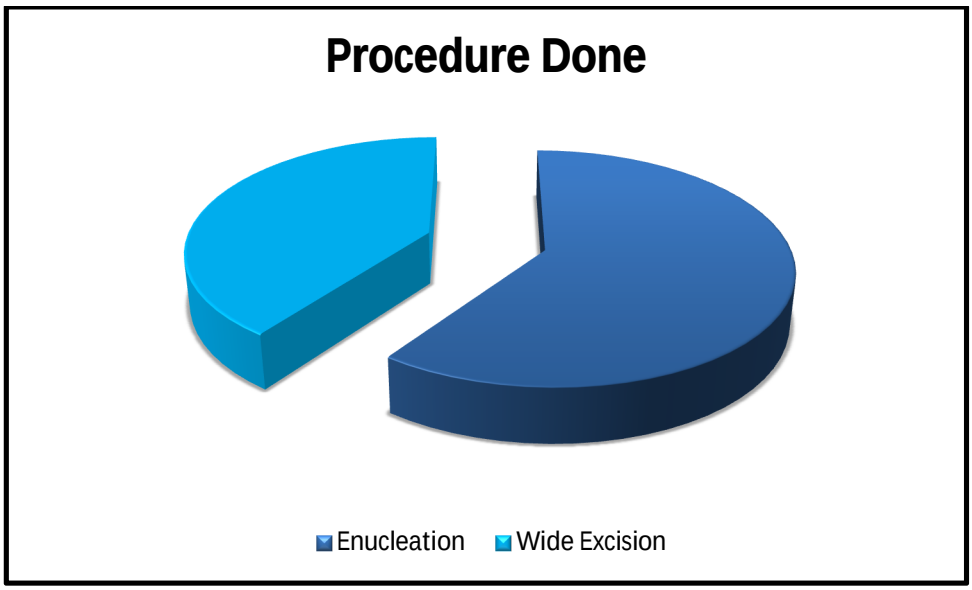


TABLE 13:PROCEDURE DONE:

Procedure Done	Frequency	Percent
Enucleation	24	60.0
Wide Excision	16	40.0
Total	40	100.0

From the tabular column, based on the pre operative diagnosis 60% of cases have undergone enucleation and rest 40% have undergone wide excision, which constitutes 24 and 16 patients respectively.

The following explains the above



So to detect the diagnostic efficacy of core needle biopsy,we compare the ROC curve of mammographic findings, usg findings,FNAC findings with the standard gold standard results of histopathology of excised specimen.

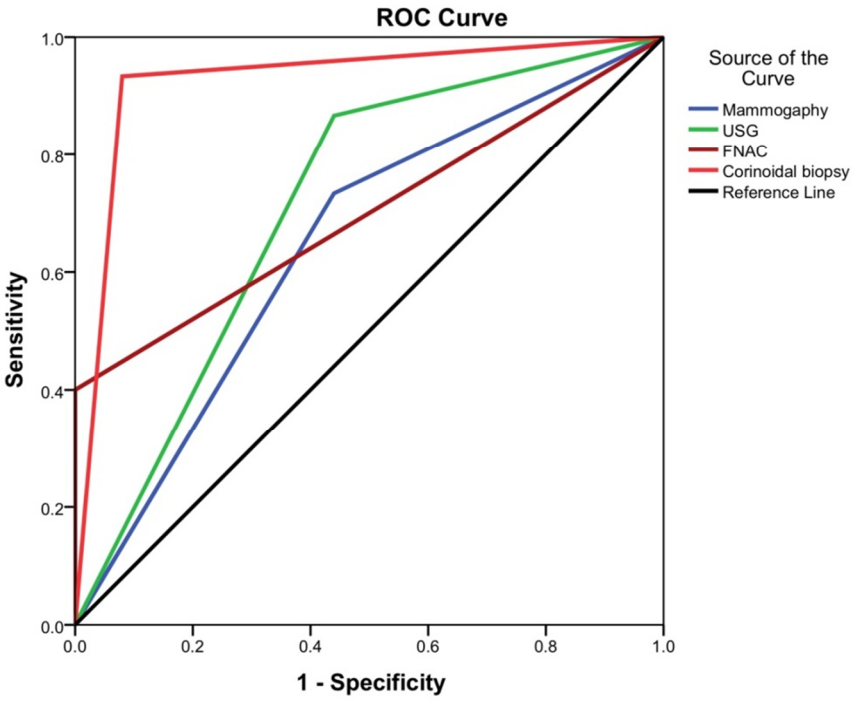
Case Processing Summary	
Histopathology	Valid N (listwise)
Positive[a]	15
Negative	25

Area Under the Curve					
Test Result Variable(s)	**Area**	**Std. Error[a]**	**Asymptotic Sig.[b]**	**Asymptotic 95% Confidence Interval**	
				Lower Bound	**Upper Bound**
Mammography	.647	.090	.124	.470	.823
USG	.713	.083	.025	.551	.876
FNAC	.700	.093	.036	.517	.883
Core needle biopsy	.927	.049	.0005	.830	1.000

P - Value	** Highly Significant at P ≤ .01

P - Value	* Significant at 0.01 < P ≤ .050

P -Value	# No Significant at P >.050



So on comparing the area under the curve of mammographic findings,USG findings,FNAC findings and core needle biopsy findings ,the core needle biopsy is found to be the most significant tool in detecting the phyllodes tumour. The area under the curve of mammographic findings, USG findings , FNAC findings and core needle biopsy findings are 0.647,0.713,0.700,0.927 respectively, in which core needle biopsy has highest area under curve. The p-value also 0.0005 for core needle biopsy which is highly significant.

CONCLUSION

To conclude, though the incidence of phyllodes tumour is very less, it has a potential for turning into malignant. So pre-operative diagnosis of phyllodes tumour is essential as it decides the line of management, which is a simple enucleation for fibroadenoma and wide excision for phyllodes tumour. Fibroadenoma is a benign condition which has clinical findings, radiological findings, FNAC findings similar to that of phyllodes tumour so the differentiation between fibroadenoma and phyllodes tumour becomes difficult, so we use core needle biopsy of the lesion and we analyse 4 features which are the epithelial fragments, stormal fragments, spindle cell and mitotic figures to differentiate the phyllodes tumour and fibroadenoma.

As the core needle biopsy is an invasive procedure we select the high risk patients using paddington's clinicopathological suspicion score and subject those patients to core needle biopsy. By these analysis we can pre operatively diagnose the phyllodes tumour. So we can decide the correct line of management pre operatively, which is the wide excision of tumour. This prevents the recurrence and re-operation following initial line of management. So that morbidity to the patient can be reduced. So core needle biopsy can be used as a effective tool to preoperatively diagnose phyllodes tumour.

BIBLIOGRAPHY

1. Lakhani SR; International Agency for Research on Cancer; World Health Organization: WHO Classification of Tumours of the Breast. Geneva, WHO, 2012, pp 141-147.

2. Foxcroft LM, Evans EB, Porter AJ: Difficulties in the pre-operative diagnosis of phyllodes tumours of the breast: a study of 84 cases. Breast 2007;16:27-37.

3. Simi U, Moretti D, Iacconi P, Arganini M, Roncella M, Miccoli P, et al: Fine needle aspiration cytopathology of phyllodes tumor: differential diagnosis with fibroadenoma. Acta Cytol 1988;32:63-66.

4. Stanley MW, Tani EM, Rutqvist LE, Skoog L: Cystosarcoma phyllodes of the breast: a cytologic and clinicopathologic study of 23 cases. Diagn Cytopathol 1989;5:29-34.

5. Dusenbery D, Frable WJ: Fine needle aspiration cytology of phyllodes tumor: potential diagnostic pitfalls. Acta Cytol 1992;36:215-221.

6. Rao CR, Narasimhamurthy NK, Jaganathan K, Mukherjee G, Hazarika D: Cystosarcoma phyllodes:diagnosis by fine needle aspiration cytology. Acta Cytol 1992;36:203-207.

7. Shimizu K, Masawa N, Yamada T, Okamoto K, Kanda K: Cytologic evaluation of phyllodes tumors as compared to fibroadenomas of the breast. Acta Cytol 1994;38:891-897.

8. Shabb NS: Phyllodes tumor. Fine needle aspiration cytology of eight cases. Acta Cytol 1997;41:321-326.

9. Deen SA, McKee GT, Kissin MW: Differential cytologic features of fibroepithelial lesions of the breast. Diagn Cytopathol 1999;20:53-56.

10. Bhattarai S, Kapila K, Verma K. Phyllodes tumor of the breast: a cytohistologic study of 80 cases. Acta Cytol 2000;44:790-796.

11. Krishnamurthy S, Ashfaq R, Shin HJ, Sneige N: Distinction of phyllodes tumor from fibroadenoma: a reappraisal of an old problem. Cancer 2000;90:342-349.

12. Scolyer RA, Mckenzie PR, Achmed D, Soon Lee C: Can phyllodes tumours of the breast be distinguished from fibroadenomas using fine needle aspiration cytology? Pathology 2001;33:437-443.

13. Veneti S, Manek S: Benign phyllodes tumour vs fibroadenoma: FNA cytological differentiation. Cytopathology 2001;12:321-328.

14. Jayaram G, Sthaneshwar P: Fine-needle aspiration cytology of phyllodes tumors. Diagn Cytopathol 2002;26:222-227.

15. Shimizu K, Korematsu M: Phyllodes tumor of the breast: a cytomorphologic approach based on evaluation of epithelial cluster architecture. Acta Cytol 2002;46:332-336.

16. Bandyopadhyay R, Nag D, Mondal SK, Mukhopadhyay S, Roy S, Sinha SK: Distinction of phyllodes tumor from fibroadenoma: cytologists' perspective. J Cytol 2010;27:59-62.

17. El Hag IA, Aodah A, Kollur SM, Attallah A, Mohamed AAE, Al-Hussaini H: Cytological clues in the distinction between phyllodes tumor and fibroadenoma. Cancer Cytopathol 2010;118:33-40.

18. Shabalova IP, Chemeris GJ, Ermilova VD, Rodionova LM, Pavlikova NA, Syrjänen KJ: Phyllodes tumour: cytologic and histologic presentation of 22 cases, and immunohistochemical demonstration of p53. Cytopathology 1997;8:177-187.

19. Komenaka IK, El-Tamer M, Pile-Spellman E, Hibshoosh H: Core needle biopsy as a diagnostic tool to differentiate phyllodes tumor from fibroadenoma. Arch Surg 2003;138:987-990.

20. Jacklin RK, Ridgway PF, Ziprin P, Healy V, Hadjiminas D, Darzi A: Optimising preoperative diagnosis in phyllodes tumour of the breast. J Clin Pathol 2006;59:454-459.

21. Adesoye T, Neuman HB, Wilke LG, Schumacher JR, Steiman J, Greenberg CC: Current trends in the management of phyllodes tumors of the breast. Ann Surg Oncol 2016;23:3199-3205.

22. American College of Radiology . Illustrated breast imaging reporting and data system (BI-RADS) 4th ed. Reston: American College of Radiology; 2003.

PROFORMA

NAME:

AGE:

SEX:

IP.No:

CLINICAL FINDINGS:

MAMMOGRAPY FINDINGS:

ULTRASONOGRAPY FINDINGS:

FINE NEEDLE ASPIRATION CYTOLOGY REPORT:

CORE NEEDLE BIOPSY REPORT:

PRE-OPERATIVE DIAGNOSIS:

PROCEDURE DONE:

HISTO-PATHOLOGICAL EXAMINATIN REPORT:

ஒப்புதல் படிவம்

நோயாளியின் பெயர் : **தேதி** :

வயது / பாலினம் :

உள்நோயாளி எண் :

நோய்க்குறி :

---------- ஆகிய நான் நாளது தேதியில் கோவை மருத்துவக் கல்லூரி மருத்துவமனையில் மார்பக கட்டி அறுவை சிகிச்சைக்காக அனுமதிக்கப்பட்டுள்ளேன்.

- மார்பக கட்டியின் தன்மை குறித்து ஆராய சதை பரிசோதனை எடுக்கப்படும் என்றும், அதன் முடிவுக்கு ஏற்ப அறுவையின் தன்மை ஏற்படும் என்பதும் மருத்துவரால் தெரிவிக்கப்பட்டது.
- இத்திசு பரிசோதனை எனது சிகிச்சையின் தரத்தை உயர்த்துவதற்காகவே என்பதையும்,
- இதன் காரணமாக எனது சிகிச்சையில் காலதாமதம் ஏற்படாது என்பதையும்,
- ஆய்வு முடிவுகளின் இரகசியம் காக்கப்படும் என்பதும்,
- பரிசோதனை முடிவுகள் ஆய்வுக்கு உட்படுத்தப்படும் என்பதும்,
- நான் விரும்பினால் எப்பொழுது வேண்டுமானாலும் ஆய்விலிருந்து விலகிக் கொள்ளலாம் என்பதையும் மருத்துவர் மூலம் தெரிந்து கொண்டேன்.

இவற்றை முழுமையாகப் புரிந்து கொண்டு முழுமனதுடனும், சுயநினைவுடனும், எவ்வித நிர்பந்தமும் இன்றி பரிசோதனைக்கும், சிகிச்சைக்கும், ஆய்வுக்கும் ஒத்துழைப்பு தர சம்மதிக்கிறேன்.

இடம் :

தேதி :

நோயாளியின் கையொப்பம்

MASTER CHART

S.No	Name	Age	In Patient Number	Duration	Site	Size	Mammogaphy Findings	USG Findings	FNAC	CORE NEEDLE BIOPSY					Pre Operative Diagnosis	Procedure Done	Histopathology of Excised Specimen
										Epithelial Fragments	Stormal Fragments		Spindle Cells	Mitotic Figures			
											Number	Cellularity					
1	Meena	24	125530	10	R	5	N	N	F	Many	Few	2+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
2	Soundariya	17	127592	14	R	2	Y	N	F	Few	Many	1+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
3	Pushpharani	40	119054	50	L	5	Y	Y	PT	Many	Many	2+	+	High	Phyllodes Tumour	Wide Excision	Phyllodes Tumour
4	Gunavathivel	34	128100	14	R	3	N	Y	F	Many	Few	1+	+	Low	Fibroadenoma	Enucleation	Fibroadenoma
5	Pechiyammal	35	120322	60	R	4	N	Y	F	Many	Many	3+	+	Low	Phyllodes Tumour	Wide Excision	Phyllodes Tumour
6	Saraswathy	45	120359	20	L	3	N	Y	F	Many	Many	2+	+	Low	Phyllodes Tumour	Wide Excision	Phyllodes Tumour
7	Rajeswari	60	127569	30	R	3	Y	Y	F	Many	Many	1+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
8	Lavanya	30	127890	15	R	4	N	N	F	Few	Few	2+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
9	Geetha	38	123036	30	R	5	Y	Y	F	Many	Few	1+	+	Low	Fibroadenoma	Enucleation	Phyllodes Tumour
10	Aarthi	19	128537	40	R	5	Y	N	F	Few	Few	1+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
11	Sumathi	33	123653	15	R	6	Y	Y	PT	Many	Many	3+	+	High	Phyllodes Tumour	Wide Excision	Phyllodes Tumour
12	Vaneeshwari	25	129654	45	R	5	N	Y	F	Many	Few	2+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
13	Chithra	35	135453	10	L	6	N	N	F	Many	Many	2+	+	High	Phyllodes Tumour	Wide Excision	Fibroadenoma
14	Ayyammal	36	131041	50	R	3	Y	Y	F	Many	Few	2+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
15	Parameswari	34	119295	25	L	5	Y	Y	PT	Many	Many	3+	+	High	Phyllodes Tumour	Wide Excision	Phyllodes Tumour
16	Brindha	20	131765	14	R	6	N	N	F	Many	Few	1+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
17	Shamala	34	131489	14	R	3	Y	N	F	Few	Few	1+	+	Low	Fibroadenoma	Enucleation	Fibroadenoma
18	Jomiveimma	20	125036	20	R	4	Y	Y	PT	Many	Many	3+	+	High	Phyllodes Tumour	Wide Excision	Phyllodes Tumour
19	Pushphalani	40	123536	21	R	4	N	Y	F	Many	Many	3+	+	Low	Phyllodes Tumour	Wide Excision	Phyllodes Tumour
20	Sowbakiya	17	89992	30	L	5	N	Y	F	Many	Few	1+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma

21	Pavithra	20	43151	18	R	2	Y	Y	F	Many	Few	2+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
22	Prabhavathy	25	126476	28	L	3	Y	Y	F	Many	Many	3+	+	Low	Phyllodes Tumour	Wide Excision	Phyllodes Tumour
23	Vasanthi	40	106478	21	R	4	Y	N	F	Many	Many	2+	-	High	Phyllodes Tumour	Wide Excision	Phyllodes Tumour
24	Saradha	40	105486	14	L	5	N	Y	F	Many	Many	2+	+	Low	Phyllodes Tumour	Wide Excision	Phyllodes Tumour
25	Rajeswari	29	100676	10	L	6	N	N	F	Few	Few	1+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
26	Krishnaveni	35	102036	15	L	4	Y	Y	PT	Many	Many	3+	+	High	Phyllodes Tumour	Wide Excision	Phyllodes Tumour
27	Vinmathi	23	10784	21	R	5	Y	N	F	Many	Few	2+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
28	Indirarani	29	121996	14	L	2	N	Y	F	Few	Many	1+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
29	Kowsalya	17	122263	14	R	5	N	N	F	Many	Many	2+	+	High	Phyllodes Tumour	Wide Excision	Fibroadenoma
30	Minorani	28	121999	30	R	3	Y	Y	F	Many	Few	1+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
31	Kamala	45	101100	14	R	4	Y	N	F	Many	Many	3+	+	Low	Phyllodes Tumour	Wide Excision	Phyllodes Tumour
32	Nirmala	28	1260684	14	R	6	N	N	F	Many	Few	1+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
33	Ramya	22	114266	10	L	3	Y	N	F	Many	Few	2+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
34	Vaishali	24	115649	30	R	5	N	Y	F	Few	Few	1+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
35	Rangammal	32	124844	45	R	3	Y	Y	F	Many	Few	1+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
36	Ponvalli	19	129553	21	R	5	Y	Y	PT	Many	Many	3+	+	High	Phyllodes Tumour	Wide Excision	Phyllodes Tumour
37	Pandijveni	23	132364	14	L	5	N	N	F	Few	Few	1+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
38	Rathinammal	48	125889	20	R	5	Y	Y	F	Many	Many	3+	+	High	Phyllodes Tumour	Wide Excision	Phyllodes Tumour
39	Johnbharathi	37	1132932	20	L	5	Y	N	F	Many	Few	1+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma
40	Mumtaj	39	125689	14	L	6	N	Y	F	Many	Few	1+	-	Low	Fibroadenoma	Enucleation	Fibroadenoma